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पुस्तकालय
गुरुकुल कांगड़ी विश्वविद्यालय

ASIAN JOURNAL OF ECONOMICS
AND SOCIAL STUDIES

Vol. 12, No. 1 (1993), 1–12

Interview with Nobel Laureate Professor J.E. Meade*

Professor James Edward Meade is Nobel Prizewinner in Economics for the year 1977. He had closely been associated with Lord Keynes and served as Professor of Economics first at London School of Economics, and later at Cambridge. His most celebrated work is in the field of international trade theory and policy. The problems of stabilization policy in open economies is the main focus of attention in his earlier work, and particularly the conditions for the existance of a balance in the domestic economy and in foreign transactions.

Q. 1. DRUZIC: There is an assertion (Peacock in Foreword of your book, *Agathotopia: The Economics of Partnership*) claiming your intermediate position in Economic Science, between hard-line leftists stating that nothing short of state capital ownership would enable harmony of interests between capitalists and workers at one extreme, and so called "Austrian" School maintaining that a competitive capitalist system will achieve these objectives but only if it is free from government intervention on the other.

Your heading position among "middle of the road" majority of economists is confirmed in a way by your own notion picturing present world as divided by iron-curtain, in which on one side much thought has been given to the introduction of participatory market into a command economy and on the other side many are searching for ways to introduce organised social responsibility for greater equality into a system of unbridled competitive money making.

Following the fall of Iron-Curtain, are there any changes in your "middle of the road" position now?

A. MEADE: My "middle of the road" ideas have not been modified in any essential way by the fall of the Iron Curtain.

Wherever competition is possible a free price mechanism market is a better method than a centrally designed and controlled plan for obtaining an efficient system of production in a free society. But private competition does not necessarily involve a capitalist company, in which the owners of the capital funds hire workers at an agreed wage rate with or without some elements of profit sharing and run the company directly or through appointed managers. An alternative institutional set-up is the Labour-Managed, Labour-Owned, Co-operative where the workers and those who provide risk capital jointly manage the enterprise as partners.

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* This Interview has been conducted by Professor Ivo Druzic at Laureate's home in Cambridge (England) and has been edited for publication by Professor Soumitra Sharma. Please note that answers to certain questions are based on Laureate's published works and have been personally approved by him. I. Druzic and S. Sharma are both members of the Department of Macroeconomics and Economic Policy at Economics Faculty, Zagreb (Republic of Croatia).

Q. 2. DRUZIC: In your recent book Agathotopia—Good Land, You are actually paraphrasing Plato's dissertation on Utopia, dismissing his intention to look for the Perfect Place produced for Perfect People to live in. Instead, You are opting for Agathotopia—Good Place, trying to produce good institutions for imperfect people to live in.

Would not it be much more in accordance with your "between extreme" designation to vote for Aristotopia—The Best Possible Place, as another great ancient philosopher Aristotle has been claimed as "golden mean" rule originator.

A. MEADE: I did not call my island Utopia because "Utopian" has come to suggest a state of affairs which it is impossible to achieve without a complete change of human nature. For example, in Utopia people behave in such a way that there is perfect *efficiency* combined with perfect *equality;* but the motivation of men being what it is this is an impossibility. Aristotopia is what in fact we aim at—the best possible. I did not call it Aristotopia because I did not want to suggest that I had necessarily in fact found the best possible solution; only that in my search for the best possible I have found something *good.* In a footnote of Agathotopia (page 73), I said that Topian Islands included not only Agathotopia (good place) but also Ameinotopia (a better place) and Aristotopia (the best possible place).

Q. 3. DRUZIC: However, reading through your works we come to quite different conclusion. Would it not be closer to the truth to describe you as an economist who always likes to swim against the "main-stream" in economic thought.

A. MEADE: It is not that I always like to swim against the tide. It is only that to remain in the middle of the road one must be critical of those who are on the side of the road; and it is fashionable to congregate at one side of the road or the other side of the road. So, I am always in a position of telling people not to be the slaves of current fashion.

Q. 4. DRUZIC: In your works you are expressing with reason, we dare say typically British trust in institutions which should efficiently arrange people's economic behaviour. For that to happen certain amount of stability (continuity) is required so that appropriate feed-back could be maintained. How do you treat time. i.e. that of dynamics concerning speeded up changes of economic environment in which the institutions are inevitably influencing behaviour with time lag?

A. MEADE: I agree, that for institutions to work well they must have performed well for some time and have become accepted. But I am afraid that I have no easy suggestions about the means to build up confidence and trust.

Q. 5. DRUZIC: Recently, you have been especially dealing with a proposition of *partnership economy* between *labour* and *capital* as a main condition for social harmony instead of former Capital-Labour confrontation in capitalist enterprises, and Labour-Capital confrontation in socialist enterprises. Since, in east Europe at the moment it seems more radical opinion advocating transformation from one extreme (solely, labour managed firm) to another (exclusively capital managed firm) is prevailing, it would be of interest to have essence of your views on partnership economy.

A. MEADE: I believe that efficient economic system requires a free market for the use of labour and a free market for the use of capital. Neither should dominate the other.

It should be possible to devise partnership arrangements in which neither factor is in exclusive control, but in which confrontation is avoided by the existence of the rules of the game which lead to decisions which are to the benefits of both the parties.

Q. 6. DRUZIC: What solutions are practically possible?

A. MEADE: Among various forms of partnership in basically free price market environment, I am proposing such an arrangement in which the capitalists own *capital shares* in the business, which are comparable to *ordinary shares* in a capitalist company. The worker partners own *labour shares.* These labour shares are entitled to the same rate of dividend as the capital shares, but they are attached to each individual worker partner and are cancelled when he or she leaves the partnership. If any part of the partnership's income is not distributed in dividends but is used to develop the business, new capital shares, equal in the value to their sacrificed dividends, are issued to all existing holders of labour as well as capital shares.

These partnership arrangements will greatly reduce the areas of conflicts between workers and capitalists, since any decision which will improve the situation of one group by raising the rate of dividend on its shares will automatically raise the rate of dividend on the shares of the other group.

Q. 7. DRUZIC: What institutions-management mechanism of partnership enterprises shall look like?

A. MEADE: The mechanism for management in a *labour-capital partnership* should be very much like those in a capitalist firm except that the managers should be appointed by, and responsible to, both *labour shareholders* and *capital shareholders* instead to capitalist shareholders only. But I think that much more thought is necessary about the detailed application of this principle so as to avoid the danger of the managers becoming a separate, and in some cases perhaps a dominant, third party in the partnership economy.

Q. 8. DRUZIC: Is it not an unusual way that you are trying to set out a different conflict preventing solution for progressing enterprise. What about the conflicts in case of stagnating or regressing firms when redundancy of excess labour seems to be the only logical outlet in market conditions?

A. MEADE: I was relying on voluntary redundancy. As a partnership regressed the return on labour shares (as well as capital shares) would fall. I assume that there are macroeconomic policies which maintain reasonably full-employment opportunities and that there is fairly generous support for the unemployed.

In these conditions a point would come in a partnership's decline when worker partners would resign to seek work elsewhere. With my proposals the management could always "dismiss" a redundant partner in the sense of sending him away without employment; but in this case the worker would continue to receive the dividend on his labour shares until he finds alternative employment. I left no room for compulsory redundancy in the sense of dismissal together with loss of the labour shares owned by redundant worker.

Q. 9. DRUZIC: In your works, much attention has been paid to the transformation process from capitalist to partnership enterprises. To what extent transformation process from *labourmanaged enterprises* to *partnership enterprises* is similar or different?

A. MEADE: I think the processes would be basically similar. In the capitalist company worker's fixed pay would have to be gradually transformed into the receipt of labour shares of equivalent value on which a variable dividend was paid; and in a labour managed firm fixed interest on capital would have to be gradually transformed into an equivalent value of equity shares with a variable dividend.

Q. 10. DRUZIC: Mutual risk bearing and gain distribution, between workers and capitalists, according to you, are the evident advantages of partnership economy. It would necessarily result in greater productivity of all factors and accordingly to cost lowering. At the same time it is claimed by you that partnership economy required extended accountancy, new costs on issuing certificates and calculating gain distribution, costs of cancelling retired workers certificates etc. Can it not happen that possible gains from partnership economy are revoked by administrative costs of its implementation?

A. MEADE: There would no doubt be some extra accounting needed. I have not given thought to it. No doubt it should be considered; but I doubt very much that the extra costs would be found to be a decisive impediment.

Q. 11. DRUZIC: In your works, much space is provided to the problems of reiterating workers and their position in partnership economy. What about new (young) workers whose living cost because of family raising, accommodation and mortgage problems, children education etc. are very high.

A. MEADE: In my opinion it would be unwise to pay worker partners more than their work was worth to the partnership simply because they were young. But their income from work would be supplemented by social benefits (the social dividend on *basic income* for their wives and children as well as for themselves) and there might well be financial institutions outside the work partnership to enable young workers to borrow (e.g. on house mortgages) for loans which would be repayable out of their future earnings.

Q. 12. DRUZIC: Abandoning the principle of equal pay for equal work is your quoted first condition for successful operation of partnership enterprises. It seems to be rather surprising statement considering the "socialising" nature of the partnership enterprise. What in fact, it does mean?

A. MEADE: The reason why I advocate the abandonment of the principle of *equal pay for equal work* is simply because, in my opinion, its retention is bound to kill the growth of the partnership principle. If a partnership is doing very well and the members are getting higher rewards then they could earn in other occupations, they will not be prepared to go on admitting new partners on the same terms as themselves, because that in due course would dilute their own earnings down towards the outside level. The partnership would either fail to expand or will turn into a fixed-wage institution as the inside partners become entrepreneurs with high incomes who hire outside workers at low fixed-wage. Expansion would take place in a partnership to the advantage of insiders and outsiders if the exceptionally well-off insiders were free to take on new partners on terms which could be attractive to the outsiders even though not so good at the exceptionally high inside earnings.

Q. 13. DRUZIC: Rising inequalities of income and wealth would be logical consequences of your first mentioned condition. In order to retain social harmony, in your opinion, what possible measures of income and wealth distribution improvement could be placed at the disposal of a partnership economy.

A. **MEADE:** The discrimination between old and new partners would not in fact increase inequality. On the contrary it would decrease inequality. A strict application of the principle of equal pay for equal work would result in a limited number of relatively small successful partnerships with high earnings and a number of other less successful partnerships with low earnings. With the principle of equal pay for equal work this marked degree of inequality would continue because the successful partnership would not recruit new partners for fear of reducing their own earnings. If they could discriminate as proposed, the successful partnership would recruit new workers at earnings higher than they were getting in the unsuccessful partnerships although not as high as those ruling in the successful partnerships. Inequality of pay over the whole economy would be reduced as the workers in lower paid unsuccessful partnerships were offered at higher rates of reward in more successful partnerships.

Q. 14. **DRUZIC:** Problems of today's economy depend upon certain future events which are stressed in your books, particularly the problem of individual enterprises necessary coordinated investment activity, implying that this task cannot be performed by the use of free enterprise price mechanism of market. As a convenient solution you are, in fact, suggesting non-market methods of coordination of plans for the future, and leading role of state economic activity in accomplishing that solution.

What is the necessity for the role of a coordinated economic state activity in otherwise free market conditions?

A. **MEADE:** Generally speaking, government policies might be devised for three basic purposes.

First, for control of inflation. By inflation we mean simply a rise in the general level of money prices of goods and services. The causes of an inflationary situation are often divided into two groups, namely those which originate from demand inflation and those which originate from a cost inflation. The financial authority must, through their monetary and budgetary policies, so stabilise the total level of expenditures throughout the economy as to prevent an uncontrolled inflation of monetary values. But at the same time, in order to prevent this from leading to heavy unemployment, conditions must be restored in free markets to ensure that money prices and costs (including wage rates) are not pushed up beyond the levels which allow all resources to find full, profitable employment at this stabilised level of monetary demand for goods and services. This raises the question of possible criterion for monetary stabilisation.

One criterion that is sometimes put forward is that the total stock of money in the community should be controlled and increased only at some moderate steady rate per annum. I consider this to be much less satisfactory criterion because (for example as a result of budgetary changes) total money expenditure can fluctuate very greatly even though the stock of money is stabilised. Money can circulate more or less rapidly and transactions can be financed by means of substitutes for money such as extended trade credits. It would seem better to go to the root of the matter and exercise some control both by monetary measures (changes in stock of money) and by fiscal measures (rates of tax) over the total level of monetary expenditure in the economy. The real important point, however, is not so much the exact nature of the criterion as that there should be some reliable, simple and widely accepted criterion which rules out immoderate price inflations or deflations.

Q. 15. DRUZIC: What are the other purposes of state economic policy?

A. MEADE: Besides the control of inflation, an important thing is the promotion of a competitive market mechanism to combine economic freedom with efficiency. In the first place, it would mean extending the field of flexible responsive price adjustment as far as can be done without undue cost. There is a general advantage to be gained from a regime of responsive prices in addition to the fact that it makes practicable a control over the *absolute* general level of money prices and incomes. The adjustment of particular prices and incomes-downwards where there is an excess supply and upwards where there is an excess demand-causes *relative* price and incomes to behave in such a way as to attract resources to their most effective economic uses.

Q. 16. DRUZIC: This would mean that wage rates should also depend on supply-demand conditions.

A. MEADE: Certainly, labour is, of course, a very special case, and there are very many ways in which it should not be treated just like any other commodity. But if proper fiscal measures are developed to look after the distribution of income and wealth, there are no reasons, why wage rates should not respond to conditions of supply and demand in particular labour markets.

Q. 17. DRUZIC: What are the possible fiscal measures?

A. MEADE: Methods of reducing inequalities in the distribution of income and wealth is third purpose of government policy. First indirect method is to alter the social and economic structural relationships in society in such a way that the citizens not only have equality of opportunity, but also start in life with much more equal endowments of fortune. Second method is to tackle the problem directly by redistributive fiscal measures, taxing whatever riches and subsidising whatever poverty, luck and structure of society may occasion.

Q. 18. DRUŽIC: What is your preference between these methods?

A. MEADE: I am putting great stress on direct fiscal measures. First, the restructuring of social relationships is bound to be a long drawn out affair and its indirect effects upon equality will only be gradually felt as the generations succeed each other. Second, strokes of good and bad luck will continue and will remain extremely important and reintroducing inequalities, however, much the basic structure of social relationships is reformed. Third, direct fiscal measures for the redistribution of income and wealth will by themselves help to change the basic structure of social relationship, since a direct redistribution of wealth in one generation will mean that the next generation starts with less inequality in its inherited endowments.

Q. 19. DRUZIC: In your plea for state intervention in otherwise free market economy you go a step further from propagating coordinating role of the state and do propose structural planning and control of social costs-benefits as a part of macroeconomic state activity. What is the substance of these state activities in market economies?

A. MEADE: The need for state activity stems from three groups of reasons why the market price mechanism cannot be expected to lead to the most efficient use of society's resources: it can not cope fully with the uncertainties of the future; it can only give correct guidance for structural change in the economy; and it overlooks many social costs and benefits which escape its calculus. To a smaller or greater degree these inadequacies pervade practically all economic activities. A housewife purchases durable washing machine in the absence of a forward market for outside laundry services to inform her that in fact the charges for outside laundry services are going to fall so much that she would be better off to send her dirty linen out to be washed.

Q. 20. DRUZIC: What could be done in such a situation?

A. MEADE: Perhaps Plato was right after all. We need benevolent guardians to tell us what goods to purchase, where exactly to live and have our business, and how to dress. But here age old question arises: Who will guard the guardians? If one wanders too far down the socialist path freedom disappears, the costs of bureaucratic controls mount, and among the innumerable guardians will be found many fools and many knaves. The end result of the authoritarian society is as horrible as the end result of uncontrolled *laissez faire*. So, the only reasonable thing to do is to seek an intermediate position in which the maximum possible use is made of the market mechanism, as a foundation on which a structure of essential social control is built.

Q. 21. DRUZIC: What does it in fact mean?

A. MEADE: It means that the problem of uncertain future should be approached by indicative planning. Such a system is only a process for the coordinated exchange of information which cannot be achieved by means of market price mechanism. It does not require any independent decision-maker to adopt any particular plan; it merely helps him to choose a plan which is more likely to fit in with future market developments.

Quite different is the case of *structural changes* in the economy, which require some kind of central planning by public authorities for such matters as transport networks or the town or country planning of the major geographical lay-out of human societies.

Finally, there are situations where many social costs and benefits may elude the market mechanism such as environmental pollution, and uncontrolled consumption of irreplaceable resources like coal, oil, minerals etc. Among the various possible types of possible plans, regulations, prohibitions, limitations, etc. I am advocating taxes on polluting activities and the use of exhaustible resources and measures to promote private and public savings. They will give a commercial incentive to free enterprise to select a structure of economic activities which avoid environmental pollution and the excessive use of exhaustible resources.

Q. 22. DRUZIC: So far, we did not cover the international setting of a decent managed economy. You once said that it would be ridiculous to reach any conclusion about what was the best set of domestic policies without considering the international setting. As a renowned international trade and commerce expert you are analyzing it in two phases similar to the discussion of domestic problems. In the first phase you also regard efficient market price mechanism as the basic economic structure. What actually this mechanism does look like in an international setting?

A. MEADE: Efficient domestic market is not thinkable without its integration with world markets. We may summarise this integration in the following manner.

There are three objectives or *targets* of overall economic policy: stability of money prices and incomes, full employment and a balance of international payments.

There are three market instruments or *weapons* of overall economic policy also: financial policy, wage policy and exchange rate policy. The system of free international trade and floating exchange rates which I advise to be adopted for one's country commerce with the rest of the world means that:

- the overall level of demand for home produced goods should be so controlled through financial policy (i.e. fiscal and monetary policy) so as to maintain stability of money prices and incomes;
- wages should respond to the demand for labour so as to ensure full employment, given the stabilised level of money demand for the products of labour;
- the rate of exchange should respond to the demand for foreign currencies so as to ensure a balance of international payments for imports and exports and similar transactions, given full employment and a stable level of domestic prices and incomes internally.

Q. 23. DRUZIC: Thses are well known general targets. But what about the more specific objectives of economic policy?

A. MEADE: One can of course, outline the system in terms of more than three major objectives. For example, if one wishes to add as a target the maintenance of a desirable balance between society's current consumption and its savings for the future, one must break financial policy down into two weapons fiscal and monetary policy. Given any stabilizing level of total expenditure one can then raise taxes (under fiscal policy) and lower interest rates (under monetary policy) if it is desired to reduce current consumption and to stimulate the investment of a corresponding amount of savings.

One thus has four targets (*Stability of money prices and incomes, proportion of national income saved, full employment and the balance of payments*) matched by four weapons (*fiscal policy, monetary policy, wage policy and exchange rate policy*)

One could add another target such as *equitable distribution of incomes and wealth,* in which case fiscal policy must be split into two weapons, e.g. *level of social dividend and the level of standard rate of income tax.* There is in fact no end to this enumeration of more and more detailed objectives; but in order to ensure that the proposed system is a workable one, it is useful to think in terms of addition of further independent weapons of policy to cope with each additional policy target.

Q. 24. DRUZIC: In your latest works on international economics your are particularly dealing with the building of the new Europe. What is your stand on national economics of politically and economically united Europe?

A. MEADE: There is a potential clash of far-reaching importance between two distinct major objectives.

On one hand, it is maintained that there are at present exceptionally strong reasons for preserving a large measure of freedom for the various countries of Europle to experiment in different diverse forms of liberal economic policies and institutions.

On the other hand, it is maintained that there are powerful arguments in favour of building a strong centralised union structure to control and unify certain clear communal objectives. Some clash between these two principles is inevitable, expecially under two main headings which cover, I think, two basic sets of problems which are the subject matter of current debate about European Economic and Monetary Union, namely, the formation of single economic market and of a single monetary union.

Q. 25. DRUZIC: Should an Economist be satisfied, in such a situation with his/her neutral position in enumerating pros and cons for or against particular decisions, or should he/her advise certain solutions?

A. MEADE: I think that the parable made by American President Truman would be appropriate here. President Truman, we are told, instituted a search for a one armed economist so that when he sought advice on an economic decision he would not be told that on one hand there was a case for, but on the other hand a case against, a particular decision. I believe, that President Truman was at fault in this desire. There is almost always a case for and a case against an economic decision; in such cases it is the duty of an economic adviser to explain the economic technicalities of the case for and the case against; it is the duty of the President to decide between the two.

Q. 26. DRUZIC: What would that mean in case of European Monetary Union?

A. MEADE: The first solution would be to settle for a system of independent national currencies so that each national authority could control both its monetary and fiscal policies for the joint control of its own inflation and wealth targets. This would necessitate some degree of flexibility between the nations exchange rates, though it would be perfectly possible and desirable to devise a set of European rules and institutions for the conduct of foreign exchange policies which prevented unnecessary volatility in exchange rates, but allowed for those moderate exchange rate variations which will be needed to harmonise the diverse national financial targets.

The second solution would be to institute a single European currency to be shared by all the member countries with a single Europlean Central Bank to administer its issue, but at the same time to centralise a sufficient part of the fiscal operations of the European Community in a centralised Community budget in order to enable its monetary and fiscal authorities jointly to design a joint monetary and fiscal policy for control of inflation, whild paying proper regard to the need, not to upset national fiscal plans aimed at their wealth targets.

Q. 27. DRUZIC: But must one of these solutions for practical purpose be abandoned in favour of the other or is there some set of a workable arrangement possible which will achieve the main advantages of both principles?

A. MEADE: As a result of the search for the workable solution, I am advocating the proposal for the issue of an additional Europlean currency which following their notation, I will call *Hard Ecu.* It seems to me to be a good way of reconciling, as well as one can, the conflicts. I have mentioned between the merits of a single European currency and of a set of independent national currencies that let there be a European Central Bank with the responsibility of issuing a new currency, the Hard Ecu—an index of the rate of *price inflation*, or alternatively as I would prefer, an index of the rate of growth of the Community's total *money GDP*. Any member country or group of member countries could adopt the Hard

Ecu as their national currencies thus forming a single operative central bank. Any other member country would be free to link its currency to the Hard Ecu in a way designed to rule out unnecessary fluctuations in the Hard Ecu value of its national currency but to permit such exchange rate variations as were planned to maintain equilibrium between its own plans for inflation control in terms of its own currency and European Central Bank plans of inflation control in terms of the Hard Ecu. Such planned variations would need to have an agreement of the European Central Bank authorities. Personally, I think that they might often take the form of a planned *crawling peg* between national currency and the Hard Ecu, changes in the rate of crawl, being agreed from time to time with the European Central Bank.

Q. 28. DRUZIC: What would in your opinion be the main advantages of such an arrangement?

A. MEADE: Such a system would allow for the early formation of full monetary union by those countries, which were ready and desired immediately to do so, for a period of adjustment for those who wished to do so, and for a continued use of a suitable controlled but variable linkage with the Hard Ecu for those countries who wished to maintain indefinitely the experiment of having one currency for foreign transactions for one reason or other, such as a choice of different forms of inflation or wealth target or a continuing divergence in wage and price setting mechanisms. The whole system would be a remarkable example of a new monetary experiment without, one would hope, nations which opted for one form of use of the Hard Ecu being regarded as superior or inferior to those who opted for another.

Q. 29. DRUZIC: Thanking you for such an extensive and really meaningful conversation would you agree that instead of a conclusion of some kind, we could conclude this interview with the parable from your book, *The Intelligent Radical's Guide to Economic Policy,* which is in our opinion the most appropriate explanation of your scientific and professional credo: *"The intelligent radical keeps his head; he argues the virtues of the free market when the tendency is to think only of the need for particular interventions and he stresses the need for social interventions whenever laissez faire becomes an object of religious devotion."*

A. MEADE: I agree.

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Exchange Rates and Balance-of-Payments Adjustment: The Post–1945 Experience*

SAMUEL I. KATZ

The balance–of–payments surpluses and deficits of the 1980s have been extraordinary both in magnitude and in resistance to correction. The stubborn American, Japanese, and German imbalances in the face of efforts by officials to reduce them confirm a lack of effective ways to bring international payments into sustainable balance under contemporary conditions.

The experience of the decade demonstrates that available adjustment mechanisms have functioned no more effectively under floating than they had under the original par-value regime of the 1960s. The authorities responsible for the functioning of the international monetary system—the members of the International Monetary Fund at the global level and the officials of the key industrial countries—were not able to devise workable adjustment arrangements when exchange rates were pegged in the 1960s or when they were floating in the 1980s.

This paper will review the efforts to agree upon workable principles and to create practical surveillance procedures for managing adjustment policies in the 1960s and the 1980s. Their failure produced in 1971 the breakdown of par values and in 1985 the abandonment of "hands off" floating in favor of a regime of ad hoc "managed" floating.

Nonetheless, all international trading systems must have some means of effecting adjustments in the external position of trading countries. In the post 1945 experience, the major trading countries have depended mainly on market-driven changes in exchange rates as the residual instrument of international adjustment, whether their currencies were pegged or floating. The reason for this dependence upon market forces is clear: there has been a lack of adjustment in domestic economic policies, especially in the key industrial countries, and a lack of effective coordination at the international level. It is clear from this experience that the major threat to world monetary stability is not to be found in the choice of the exchange rate arrangements, nor in the management of the reserve-creation process, but in the functioning of the means of adjustment that the trading countries are prepared to employ to maintain balance in their external payments.

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*This paper was originally published in Hans R. Stoll (Editor), *International Finance & Financial Policy*, Westport CT, Quorum Books, 1990.

This paper is organized in five sections: the par-value regime and its collapse, 1960 to 1971; "hands off" floating abandoned in mid-1985; why adjustment under floating failed, 1981 to 1985; can exchange rates be effective?; and global adjustment mechanisms and the exchange rate.

The Par-Value Regime and Its Collapse, 1960 to 1971

The primary cause of the breakdown of the system of par values in the 1971–73 period was "without doubt . . . the failure of the adjustment process," Margaret De Vries, retired IMF historian, has written in her authoritative survey of the IMF experience with balance-of-payments adjustment problems between 1945 and 1986 (De Vries, 1987, p. 94). Adjustment arrangements broke down because the monetary authorities of the industrial countries were unwilling to employ either changes in exchange rates or in internal demand for the purpose of correcting external payments imbalances. There was a deadlock among them during the decade of the 1960s on two critical issues: what instruments of adjustment should be employed; and how the burden of adjustment should be shared between deficit and surplus countries.

The dead-end character of these disputes both within and outside the IMF was all the more disappointing because there had been broad agreement among Bretton Woods participants in 1944 on the principles to govern adjustment behavior and on the appropriate policy instruments. They agreed that adjustment could not be left to some smoothly functioning automatic mechanism but depended upon national policy decisions. The member was expected to respond to a payments disequilibrium on its own initiative. The action program was to accord with internationally agreed principles and procedures and was subject to multilateral consultations where matters of exchange-rate action or financing were concerned. Under the articles of Agreement and implementing regulations, the member was expected to avoid two policy tools—controls over current transactions and an extended dependence on financing—and to employ two approved instruments—changes in domestic demand and in exchange rates—for adjustment purposes. The member could employ a change in exchange parity only after demonstrating to the IMF that a condition of fundamental disequilibrium prevailed in its external payments; but the member alone–and not the IMF—could propose a change in parity, the IMF having virtually no scope to deny it.

During the 1960s, the monetary authorities were unwilling to use either changes in domestic demand or exchange rates. They rejected changes in demand for external payments purposes when inconsistent with the overriding priority of full employment. During the 1960s, for example, European officials would have had to tolerate "imported inflation" from their trade surpluses and reserve accruals. In turn, American officials would have had to employ cuts in demand at home to curtail chronic payments deficits at a time when domestic unemployment was already at levels that European officials would have regarded as unacceptable.

A Rigidity in Exchange-Rate Practice

What was unexpected—and contrary to the intention of the Bretton Woods participants—was the consensus against recourse to changes in exchange rates. There were differences among participants in 1944 about the conditions under which the member could propose a change in parity, but they agreed that a recourse to exchange rates as an adjustment tool was to distinguish the Bretton Woods system from the rules of the old gold standard. Harrod (1951, p. 563) is our authority for the conclusion that "Keynes and White agreed that it was desirable to have a fixed rate of exchange in the short run, with flexibility in the long run." Keynes would go further in his speech before the House of Lords on May 23, 1944:

> The plan not merely confirms the dethronement [of gold] but approves it by expressly providing that it is the duty of the Fund to alter the gold value of any currency if it is shown that this will be serviceable to equilibrium.
>
> In fact, the plan introduces in this respect an epoch-making innovation in an international instrument, the object of which is to lay down sound and orthodox principles. For instead of maintaining the principle that the internal value of a national currency should conform to a prescribed *de jure* external value, it provides that its external value should be altered if necessary so as to conform to whatever *de facto* internal value results from domestic policies, which themselves shall be immune from criticism by the Fund.

It would be the work of Meade (1951) to provide the economic analysis upon which national officials could determine whether changes in domestic demand or in exchange rates would enable them to reconcile domestic goals with the objective of external balance (also see Katz, 1972).

Despite this common ground among the original participants, however, the monetary officials of the industrial countries began to expound the doctrine that parity changes "should be absolutely a last resort" as early as 1961; Coombs (1961, p. 105) added that, with skill and experience, "the contingency of having to resort to an exchange adjustment will become increasingly remote." This presumption was reaffirmed as late as 1967 when Emminger (pp. 512–522) wrote: "I assume that for all practical purposes variations of exchange rates will in the future, as at present, be used only in exceptional cases as a method of balance of payments adjustment among the major industrial countries."

There were several reasons for the consensus that changes in exchange rates were not to be regarded as an ordinary instrument of payments adjustment. First, officials found the domestic political costs of any parity change to be much higher than had been anticipated. For example, European officials ruled out revaluation after the 5 percent appreciation of the deutsche mark in March 1962 produced a "shock to the export community" and "created within German industry a determination that it would not be repeated" (Emminger, 1966, p. 129).

Officials in deficit countries were equally reluctant to alter parities. They often concluded that the competitive benefits of a lower parity were outweighed by its political disadvantages. On these grounds, Harold Wilson rejected devaluation when he became prime minister of Britain in 1964. Similarly, U.S. officials opposed devaluation as highly disruptive for all currencies, not merely for the dollar. Some Americans even convinced themselves that the dollar—as anchor of the system—could not or should not be devalued. European officials were bound to challenge a notion that their countries alone should bear the political costs of a parity changes.

It would be misleading, however, to explain the rigidity of parities during the 1960s principally in terms of political considerations. What emerges from the De Vries record and from outside writings is the firm opposition of monetary officials in the industrial countries to changes in exchange rates for adjustment purposes. For example, Emminger wrote in 1970 (p. 5): "in its practical approach to payments imbalances, working Party No. 3 like the IMF, had always considered devaluation or revaluation as a last resort ('ultima ratio'), only to be adopted when everything else had been tried and found wanting." As late as 1969 and 1970, the IMF's Board of Governors rejected an internal IMF report that had made "cautious circumscribed recommendations" about changes in the prevailing exchange-rate rigidity (De Vries, 1987, p. 91).

Balancing the Adjustment Burden

The reluctance to accept changes in parity exposed what proved to be a basic weakness of the Bretton Woods system: the lack of any systematic basis for sharing adjustment responsibility between deficit and surplus countries. A peggedrate regime in practice imposes a more urgent need for adjustment on deficit countries, which are losing reserves, than on surplus countries gaining them. In contrast, the IMF's Articles of Agreement, as they were finally approved, were intended to affect a symmetry in adjustment responsibility; however the agreed-upon compromise could not be made to work.

The need for a clear definition of adjustment responsibility was a central issue at Bretton Woods because Keynes was preoccupied with the problem. He held firmly to the belief that international constraints had to be formulated to apply to creditor countries. Otherwise, they would be free to avoid any responsibility for adjustment action if they so wished. This view explains the harsh constraints he proposed in the 1941 (original) version of the clearing union. Countries with credit balances were to be treated exactly as were those with debit balances. The creditor would be required to appreciate by 5 percent when his credit balance exceeded 50 percent of quota and to surrender all balances beyond 100 percent of quota to the institution's Reserve Fund (Keynes, 1980, p. 36). Such severe sanctions found little support, even among British colleagues.

In the end, Harrod (1951, p. 543) tells us, the "real sanction against the creditor country lay precisely in the large credit that it would pile up" under the proposed clearing union. When the U.S. representatives rejected the unlimited liability of the British proposal and substituted an IMF of limited quotas, they offered as a constraint against creditors a "scarce currency" clause. Under its terms, the IMF would issue a report setting forth the causes of the scarcity and containing recommendations designed to bring it to an end. A representative of the member whose currency was involved was to participate in the preparation of the report. Keynes came to regard this substitution as so severe a penalty that the creditor would take steps to ensure that it would never be activated.

The scarce-currency innovation implied a radical restructuring of the international adjustment process. It provided deficit countries with the one certain sanction they always have against the surplus: to discriminate against their merchandise. However, the discrimination required a finding of fact by the IMF and could not be the unilateral decision of a deficit country. The sanctions against surplus countries and against unilateral action by deficit countries addressed widely perceived weaknesses in the adjustment mechanism but, over 40 years of experience, have been entirely ineffective.

In practice, the IMF has never found any sanction to encourage cooperative action by surplus countries. Fund officials have never sought, nor obtained, a specific commitment for remedial action by a surplus country, regardless of the size or chronic nature of the surplus. Adjustment behavior by such a country under IMF procedures remains purely voluntary.

The ambiguity about burden-sharing made the international adjustment process under par values a waiting game. Both deficit and surplus countries were encouraged to delay remedial action. Although all members had an interest in a smoothly functioning global system, they also had an interest in shifting the costs of adjustment to trading partners.

Liquidity Creation as an Approach to Adjustment

The stalemate over adjustment responsibility was broken in the mid-1960s when a consensus emerged among monetary officials in favor of "the injection of new liquidity into the system—that is, reserve creation—as a way to solve the adjustment problem." The IMF staff "quickly came to regard . . . reserve creation the best way to save the international monetary system" (De Vries, 1987, p. 85).

American and British officials, in particular, supported efforts at reserve creation. They were seeking a way out of the classic weakness of the deficit country in a fixed-rate regime: the need to avoid pressures for domestic deflation. As Keynes had long urged, only with the option of devaluation in appropriate circumstances could the deficit country find protection against the need to lower money wages for external purposes. By discarding the exchange-rate option in the 1960s, American officials were left by default with domestic remedies they were unwilling to use. But they were under continuing rebuke by European officials to deflate. Emminger wrote in 1967 (p. 517):

> This long drawn-out adjustment in the world economy clearly illustrates that the burden of adjustment lay very one-sidedly on the shoulders of the European surplus countries. There was no signi-

> ficant deflation on the U.S. side but a large—and in the end intolerable—measure of inflation on the side of the European countries.

The preoccupation with reserve creation meant a neglect of adjustment matters and strengthened the official opposition to changes in exchange-rate policy or mechanism. This focus prompted James Meade to declare at a conference in 1967 that "the attention given to liquidity in our discussions is quite out of proportion to the attention . . . to adjustment" and to add:

> I am saddened by the sight of so many people in such positions of great responsibility, and in such positions of intellectual and academic influence in these matters, spending such a high proportion of time discussing . . . ways to controlling and increasing . . . liquidity relative to the . . . time given to what in my view is the much more important problem of how the countries in the free world . . . adjust their payments to each other (see Hinshaw, 1967, pp. 121–122).

The priority assigned to the creation of a new reserve asset proved to be costly to longer term U.S. manufacturing interests. This policy meant that U.S. officials were acquiescing in an exchange-rate structure established in 1949 and only slightly modified thereafter, despite the transformed position of a reconstructed Europe in the world economy by the mid-1960s. The high dollar placed a heavy competitive burden on U.S. firms and accelerated a loss of long-term industrial competitiveness already under way—a problem that reemerged as the major U.S. economic reality of the 1980s. Instead of seeking a realistic structure of currency values, U.S. officials turned to controls over capital outflows in the mid-1960s for adjustment purposes.

As it turned out, adjustment action was finally forced upon U.S. and European authorities by disturbed conditions in exchange markets after 1968. By mid-1973, in fact, the United States had devalued twice and European currencies had risen against the dollar to levels which, earlier, officials had not been prepared to contemplate. Market-driven changes in exchange rates became the residual instrument to end chronic imbalances of the 1960s.

"Hands Off" Floating Abandoned In Mid-1985

The international adjustment arrangements worked no more smoothly in the 1980s under floating than they had in the 1960s. The surpluses/deficits of the major industrial countries were larger, and persisted longer, than in the parvalue era. This experience contrasted with the 1970s when ad hoc floating had demonstrated an extraordinary resilience amid the unprecedented economic turbulence associated with the 1973 oil price shock.

To be sure, the overall payments positions of these countries were being readily financed without market disturbance. Offsetting capital outflows from the surplus countries financed the U.S. deficits. Thus, the current-account imbalances created no financing problem for the global system or disturbed the tranquility of financial markets. Further, currency values were not being distorted by an artificial pegging of exchange rates; from 1981 to mid-1985, there was no U.S. official support for the dollar. The Reagan regime adopted a "hands off" approach to exchange rates in place of the activist intervention policy of the late Carter years. Intervention was to be authorized "only when necessary to counter conditions of disorder in the market" (Sprinkel, 1981, p. 12).

As it turned out, there was a market equilibrium in a situation in which the Japanese and German surpluses were financed by capital outflows and the U.S. deficit by foreign inflows. Nonetheless, the current-account imbalances continued to grow—a trend that could not be sustained over the medium term, either on economic or political grounds. In particular, import penetration from the distortion in currency values created a groundswell of political support for protection in the United States unequalled since the Smoot-Hawley days of the 1930s.

The primary force behind the import penetration was the rise in the dollar from 1981 to 1985. The consensus among econometric studies has been that "more than half [the U. S. deficit] was associated with the loss of price competitiveness . . . owing largely to the strong appreciation of the dollar in the first half of the 1980s" (Howard, 1989, p. 9). Furthermore, the direction of change in relative currency values was contrary to the requirements of international adjustment. Thus, the dollar appreciated in step with a series of trade deficits; the yen and DM depreciated in step with a series of growing surpluses. Such perverse trends in market values for currencies could not be sustained.

Critics would regard these trends as a systematic failure. A flexible system, it was assumed, would call into play corrective market forces, regardless of the origin of the imbalances. A process of automatic and monotonic correction would make official intervention unnecessary. This view challenged the basic principle of the original Bretton Woods system: that, in a world dedicated to domestic priorities, adjustment had to be a policy-guided process, and member countries were obligated to take steps to moderate external surpluses and deficits in their international accounts.

Current-Account Imbalances and Floating Currencies

The experience of the 1980s revealed two unexpected developments under the floating rate arrangements. First, the relative currency values that cleared the exchange market did not clear the goods market. That is, the exchange rates among the major currencies were not consistent with the fundamental determinants of price-competitiveness and failed, therefore, to provide the pricing basis for orderly commercial competition in global markets. Indeed, the distortions in currency values—the high dollar—encouraged a one-sided penetration of imports into the U.S. market reflected in the growing deficits shown in Table 2.1. Second, the movements in currency values from 1981 to 1985 did not reduce, but greatly enlarged, the current-account deficits/surpluses among the key industrial countries. Even after there was agreement to effect a gradual reduction in the

TABLE 2.1
UNITED STATES, JAPAN, AND GERMANY: CURRENT ACCOUNT BALANCES AND EXCHANGE RATES

Year	Current account balances			Selected dates	Exchange rates		
	United States	Japan	Germany		Trade weighted dollar (1973=1,00)	Yen per dollar	DM per dollar
	(in billions of U.S. dollars)						
1981	6.9	4.8	–3.6	1981–Jan. 16	90.16	208.5	1.80
1982	–8.7	6.9	5.1	1982–Nov. 12	125.36	268.0	2.59
1983	–46.3	20.8	5.3	1983–Sept. 2	130.56	246.0	2.70
1984	–107.1	35.0	9.9	1984–Jan. 13	135.24	233.0	2.80
1985	–115.1	49.2	16.6	1985–Feb. 12	164.50	262.0	3.39
				–Sept 20			
1986	–138.8	85.8	39.3	1986–Jan. 24	139.25	239.0	2.80
1987	–154.0	87.0	45.0	1987–Jan. 24	124.57	195.0	2.46
1988	–135.3	79.5	48.5	1988–Jan. 1	100.33	153.0	1.84
				–June. 29	86.04	121.0	1.57
1989[a]	–139.3	84.0	49.7	1989–May. 23	95.16	132.2	1.82
1990[b]	–156.6	93.5	51.2		103.94	142.3	2.01

Note: The current-account data are for the year. The exchange rates were selected to record the level of the dollar for the dates specified.

[a] Estimate as of April 1989.

[b] Forecast.

Sources: Current account balances IMF *World Economic Outlook*. April 1989. Exchange rates: Trade-weighted dollar, Board of Governors of the Federal Reserve System; Yen and Dm quotations: Daily press.

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value of the dollar in September 1985, the cureent-account imbalances continued to grow until 1988 (see Table 2.1).

By mid-1985 the world economy seemed to be drifting helplessly toward a foreign trade disaster. Bilateral U.S. Japanese trade negotiations were increasingly abrasive, and major support for protection was growing in the United States, both in and outside the Congress. At the time, monetary officials faced three major threats to financial stability:

1. In foreign trade, a recognition that the Congress was likely to pass protectionist legislation as its response to surging imports into this country.
2. In macroeconomic policy, mounting evidence that the U.S. business expansion was being crippled by the import penetration.
3. In financial markets, fears of a "hard fall" for the dollar as investors looked ahead to growing trade deficits and mounting U.S. indebtedness to foreigners.

Each of the three threats was eased when the Group of Five (G–5) countries—the United States, Japan, Germany, Britain and France—initiated a broad program of policy coordination, centered around exchange-rate action as its focus. Officials endorsed a program at the Plaza Hotel in New York in September 1985 to bring about "some orderly appreciation of the main non-dollar currencies against the dollar" (Funabashi, 1988, p. 236). They achieved this objective by the early months of 1986, particularly for the yen (see Table 2.1).

Bringing Down the Value of the Dollar

The significance of the G–5 cooperation in reducing the value of the dollar has been the subject of controversy among economists. Advocates of flexible currencies have come to the view that "its significance in reducing the dollar has been greatly exaggerated." In this view, "the G–5 meeting and the subsequent exchange market intervention had no sustained effect on the dollar's overall rate of decline." What depressed the dollar was "not currency intervention or coordinated jawboning . . . but the basic fundamentals of the decline in international interest differentials, in projected U.S. budget deficits and in the price of oil" (Feldstein, 1987). By contrast, proponents of market intervention and/or of pegging exchange rates have regarded the operation as a triumph of coordinated central bank intervention.

In my view, neither of these polar interpretations fully recognizes the unique combination of favorable factors that made the Plaza initiative a successful episode of policy coordination and intervention by the industrial countries. In the first place, the monetary authorities did not work against underlying market trends. The dollar had already begun its decline in February 1985 (from its sharp late December run-up) in part in response to what the *New York Times* (March 10, 1985, p. F–1) called "Europe's Great Dollar Raid" by their central banks to halt the dollar's rise.

Second, the major participants—Japan and the United States—supported the market intervention with the reversal of major elements of their national economic strategies. Japanese officials accepted exchange-rate stabilization at lower and lower levels of the dollar; they endeavored to ensure that "the yen fully reflects the underlying strength of the Japanese economy" (Funabashi, 1988, p. 265). The change in U.S. policy perspectives was equally dramatic. American officials finally brought themselves to acknowledge that the overvalued dollar was the primary source of the trade deficits, and was not merely a market evaluation of the Reagan economic program. They decided that a general exchange-rate realignment was preferable to fiscal action as the cornerstone of a U.S. adjustment program. Because German officials made no significant policy changes, the Plaza Accord was essentially a bilateral U.S. Japan undertaking, as the limited appreciation of the DM after September suggests.

It followed, thirdly, that officials in Japan did not resist the upward movement of the yen, as officials in surplus countries commonly do, but supported it with technical skill. They were able to do so because there was broad agreement within Japan, especially in business circles and in the bureaucracy, that export firms could live with a yen at 200 to the dollar. They pushed the yen's rise/dollar's fall with timely market intervention, with moral suasion when the yen's advance faltered in mid-October, and with modest monetary steps to maintain an upward momentum.

In the fourth place, the United States was protected from the negative effects a falling dollar might set in motion by favorable developments in U.S. financial markets—in particular, by a boom in bond prices and generally falling interest rates. During the second half of 1985, for example, Japanese and other foreign investors in ten-year Treasury securities would have gained more from capital appreciation than they would have lost from the falling dollar. This fortunate coincidence helps to explain how the United States—despite a weakening currency and a widening trade deficit—could enjoy an uninterrupted capital inflow at declining interest rates.

By the end of 1985, foreign official support for the lower-dollar effort began to fade as German and Japanese officials watched the erosion of the competitive positions of their export firms. By 1987, in fact, they had abandoned their lower dollar strategy and aggressively supported the dollar rate. "Somewhat over $100 billion, or more than 60% of the U.S. current-account deficit (for 1987), was directly financed by the official sector" and "about another $20 billion" of official funds was supplied indirectly via the Euro-market according to Bank or International Settlements (1988, pp. 188–189) estimates.

Bullding on the Plaza Cooperation

U.S. Treasury Secretary Baker sought to build on the successful 1985 operation and to set in place a process of economic surveillance among the G–7 countries, which was outside the IMF. The new procedure was based upon economic indicators as the triggering mechanism for continuing review of each country's economic performance. At the Tokyo summit in May 1986, these countries identified nine indicators that were to be the basis for a regular review of each partner's economic program. They included three international indicators—the current account/trade balance, international reserves, and exchange rates—and six domestic macroeconomic indicators—GNP growth, inflation, interest rates, unemployment, fiscal deficits, and monetary growth (Funabashi, 1988, p. 268). This is the first occasion when major trading countries had agreed in a formal international communiquè to specific domestic economic measures as appropriate subjects for international consultation and review.

The U.S. initiative failed. The new surveillance machinery did not improve adjustment cooperation because the financial officials involved could not translate the undertakings of coordination in the official communiquè into actual policy changes at home. Secretary Baker never got administration support for a budgetary stabilization effort. Had the Reagan administration set in motion a budget compromise program that foreigners would regard as meaningful, the leadership role of American officials in the financial negotiations would have been much strengthened. The lack of such U.S. initiative merely strengthened the opposition of Japanese and German officials to a continuing review of their domestic economic decisions in an international forum sponsored by the United States.

This opposition was soon made public. Japanese Vice-Minister Gyohten (1986, p. 9) explained that "it is not realistic to think that every government has the same authority to conclude and keep the commitments they made." Bundesbank President Pohl (1987) maintained: "Those who wish to replace ad hoc decisions by indicators have no clear idea about the nature of monetary decisions." As a result, the G–7 monetary authorities soon abandoned the substantive core of the surveillance machinery created in Tokyo and agreed, as a face saving resolution of the matter, that the IMF would be asked to undertake a gradual renfinement of economic indicators as an exercise among technicians. This distrust of economic indicators was in part a legacy from the U.S. proposal in the early 1970s, which treated them as automatic policy triggers and were structured so that substantial U.S. losses of reserves might signal adjustment action by medium-sized countries, the United States being shielded by its relatively larger quota.

Why Adjustment under Floating Failed, 1981 to 1985

The breakdown in the available adjustment processes between 1982 and 1985 was not the result of any defect in the floating exchange-rate regime but was a failure of national policies in the industrial countries. The authorities in each of them adopted national economic strategies with no regard to their implications for external balance or for the economies of their trading partners. Even after deficits/surpluses on the current account had become mammoth, they were not prompted to make mid-course corrections in national policy. They recognized no international commitment to pursue their domestic goals in ways more consistent with external payments balance.

The U.S. "Hands Off" Policy

U.S. officials adopted a "hands off" policy about exchange rates in response to an external disturbance: a demand from abroad for dollar assets that exceeded the needs to finance the current account. The foreign demand was broad-based and worldwide and was prompted by serious political and other noneconomic as well as economic factors. The magnitude was such that it would have challenged to the limit the policy tools American officials had to cope with the inflows, even if they had accepted the need and the desirability to do so. At the time, the major stabilization instruments were immobilized: monetary policy, by an overriding concern about inflation and fiscal action, by the Reagan priority for tax cuts and military spending. Agreement among Reagan's economic advisers that the budget deficit was not a significant policy problem further inhibited fiscal action. Monetarist economists considered that "deficits of the magnitude contemplated . would not inhibit the ability of the Federal Reserve to control money growth. With a steady deceleration of money growth, any effect of the impending deficits on interest rates would be more than offset by the reduction in inflationary expectations" (Sprinkel, 1981, p. 433). Supply-side economists regarded fiscal policy as the driving force of economic growth and were confident that the gains from higher incomes after tax cuts would offset any revenue losses.

In these circumstances, the administration could have explored policy action along two lines: official acquisition of foreign currencies and institutional and regulatory amendments to make U.S. markets less attractive to nonresident investors. A program of official acquisition of foreign assets would have been a major policy initiative and should have been contemplated, in my view, only if it were an element in a broad stabilization package associated with changes in fiscal and monetary policy. Institutional changes might have played some small role in reducing the incentives for capital inflows. For example, the Treasury could have retained the withholding tax on nonresident security holdings. Similarly, the $100,000 limit on insured bank balances could have been restored to the pre-1980 limit of $40,000. Further, government insurance could have been eliminated on retail-brokered deposits (of less than $100,000 or larger deposits subsequently divided by the broker into insurable amounts).

In the final analysis, administration officials held to a strategy of allowing the dollar to be pushed up by market forces, and then proceeded to welcome the results. When it began its spectacular rise, they made no attempt to moderate the upward movement.

In retrospect, U.S. officials did not fully recognize the domestic economic effects of the dollar's extraordinary rise. Certainly there is no evidence in the public record that Reagan officials or private economic advisers anticipated that the export-and import-competing sectors of the economy would be so broadly devastated or that the United States would be transformed from the world's major creditor nation in 1982 to its major debtor nation by 1987 or 1988.[1] Yet the mechanisms through which an overpriced currency can devastate a national economy are brilliantly analyzed in Keynes' classic essay of 1925 on "The Economic Consequences of Mr. Churchill," in which he reviewed the ways in which the overvalued pound would impact Britain's domestic economy with the prediction of deflation and unemployment in the traded goods industries and of a major deterioration in Britain's trade balance (Keynes, 1952). Students can find the framework presented by Keynes to be an altogether timely insight into what happened to U.S. traded goods industries after 1981. Those who do not learn from history repeat it.

That American political leaders would welcome a flood of foreign capital is not surprising. It assured them that their domestic policies were soundly based; after all, foreigners wanted U.S. assets. Even at the February 1985 peak value of the dollar, President Reagan "did not think the dollar was overvalued and that Europe's economy should catch up with America." The press report added: "President Reagan's defense of the strong dollar removed all barriers to its advance today and it capped a record-breaking week at new highs" (*Washington Post*, February 23, 1985, p. D–1).

The surprising part is the absence in the public record of concern among advisers, both within and outside the administration, about the long-term damage to the U.S. international economic strength of the high-dollar policy. The "hands off" approach rested largely on the conviction that a currency quotation determined without official intervention was necessarily an appropriate one. Further, many economists doubted that the dollar could be regarded as over valued (Feldstein 1983; and *Annual Reports* of the Council of Economic Advisers for 1984, 1985, and 1986). Much of the published debate focused on whether or not the dollar was overvalued—a question replete with technical ambiguity—and not on the more concrete topic: the longer term costs of the high dollar for the U.S. economy.

By historical standards, the high dollar was an extraordinary distortion. Between 1981 and 1985, the dollar advanced to levels that favored Japanese and German manufacturers with exchange windfalls of up to 40 percent on U.S. sales. The pound's rise that prompted Keynes' essay had been only 10 percent.

The high dollar provided a special incentive for: (1) U.S. consumers to shift from domestic to forign products; (2) U. S. producers to transfer production abroad, locating plants in low-wage countries beyond the reach of U. S. labor unions; and (3) foreign producers to use the extraordinary exchange windfalls to entrench themselves in the U.S. market. Such massive shifts in demand and supply were bound to produce changes of a structural character in the U.S. economy. The positive element was an improved competitiveness. U. S. management and labor were challenged by imports to meet international standards in such areas of manufacturing as work practices, a recognition of blue-collar labor as a primary corporate asset, and a transfer of decision-making from finance to technological concerns. In addition, the job-creating capacities of the U.S. economy were well-maintained throughout the decade.

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[1] An authoritative and balanced survey of the contemporaneous policy debate about the U.S. high-dollar policy from 1982 to 1985 can be found in these collections of papers and congressional hearings: "Foreign Exchange Value of the Dollar" (1983), "Foreign Exchange Value of the Dollar" (1984), "The U.S. Dollar—Recent Developments, Outlook and Policy Options" (1985), and *The Strong Dollar: Causes, Consequences and Policy Implications* (1985).

But there were pervasive negative elements as well. Manufacturing output continued to expand during the 1980s but it depended primarily upon massive defense expenditures and upon growth in sectors—chiefly in the services area—that are not exposed to foreign competition. The overall production trends mask a devastation of the capacity and the competitiveness of U. S. industry in the traded goods sectors. U.S. firms proved less and less able to meet the consumer demand at home for manufactured products. Import penetration continued after 1985 despite the sharp fall in the value of the dollar. The fact that by 1987 the trade-weighted dollar had returned to the 1981 level would not by itself sharply curtail import purchases (see Table 2.1)

The overvalued dollar, or rather the capital inflows that pushed it up, was a central element in the way the Reagan economic program worked out. It enabled the United States to carry out a program combining massive tax cuts, a defense buildup, and a private investment boom—primarily on the basis of foreign funding. The policy was supported by Japan and Germany, which relied on export sales and not on domestic spending, to recover from the 1982 recession. By mid-1985, however, this strategy approached its limits; surging imports had become a major drag on U.S. business activity and pushed Congress toward protectionism.

The failure of U.S. officials to interpret the soaring dollar as a warning signal and to make midcourse policy changes has permanently impaired the U.S. international economic strength. In this sense, it will be seen by historians as a blunder of long-term consequences. In any case, the Reagan administration will leave a contradictory legacy in the foreign area: that is, it combined military and diplomatic policies that reasserted the U.S. global security posture with an economic policy that drastically diminished its capacity to meet the foreign costs of those commitments.

Inward-Looking Policies in Japan and Germany

The counterpart of the U.S. refusal to respond to the soaring dollar was the Japanese and German refusal to respond to soaring current-account surpluses. Between 1981 and 1985, their authorities recognized no obligation to halt the fall of their currencies vis-a-vis the dollar. They were comfortable with their growing surpluses until 1985 when they began to fear Congress would deny them access to the U.S. market.

In addition, step-by-step relaxation of Japanese controls over the placement of institutional funds abroad helped to hold down the value of the yen, further stimulating exports. The mounting capital outflows shown in Figure 2.1 did not represent additional Japanese savings but regulatory actions by the authorities. The placements abroad grew rapidly after 1983 and reinforced the speculative factors in the exchange market, which had by February 1985 brought the yen down to 262 to the dollar (refer to Table 2.1).

The deregulation program was associated with U.S. Japanese financial negotiations under which (1) Japanese interest rates would move toward international level; (2) nonresidents would be granted a freer access to Japanese facilities; and (3) Japanese residents would be allowed to place funds abroad. In retrospect, it is now clear, the Japanese authorities made only limited moves to free internal interest rates and only modest and grudging steps to allow nonresident access to Japan. As late as June 1989, for example, T. Boone Pickens (1989) reported after his purchase of shares in a Japanese manufacturing firm that.

> though shares in Japanese companies are ostensible traded freely on world markets, a clubby system of interlocking ownership governed by an unwritten corporate code ensures that control of these companies will remain in Japanese hands. It also ensures that stocks on the Tokyo Stock Exchange trade at unusually high multiples of share price to earnings because only a small percentage of a company's shares actually trade freely.

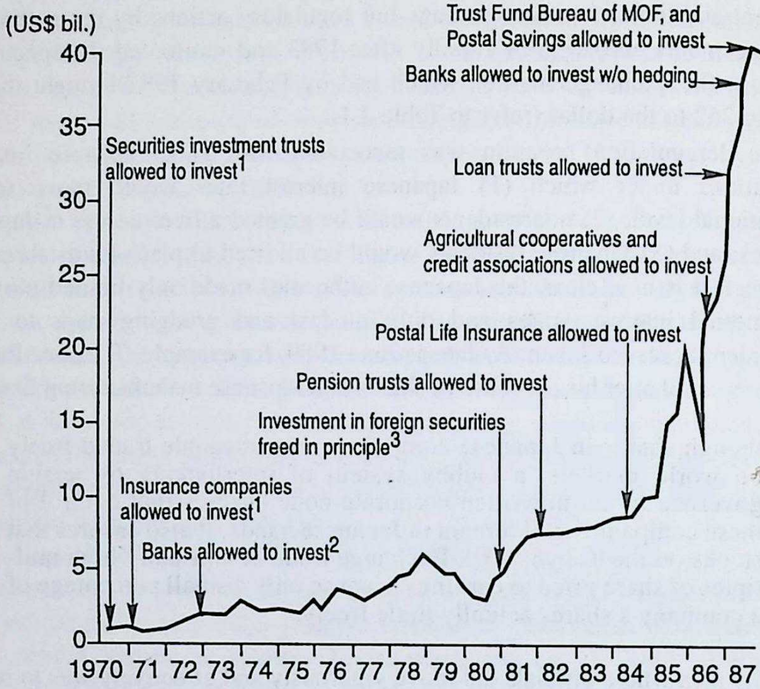
The only area where officials did move vigorously and effectively was to reduce controls on the placement of Japanese funds abroad (see Figure 2.1).

If the German experience in the 1960s is a guide, freer access to Japanese resources would have added to market pressures pushing up the yen. In the German case, the DM was under continuous upward pressure, pushed up by foreigners who wished to acquire bargains in underpriced DM assets—merchandise, securities, and industrial plants—and by German firms that borrow abroad. These private inflows forced the German authorities to accept DM appreciation in the early 1970s. In my view, nonresidents would have found comparable bargains in Japan in the 1981–85 period when the yen ranged from 200 to 268 to the dollar, had they been free to do so.

In choosing to relax controls on the capital exports as *the* major reform pursuant to the U.S. -Japanese negotiations, Japanese officials where being consistent with their long-standing economic strategy: that is, an international thrust on the export side and an inward thrust on the import side. Export goals were defined not in terms of domestic needs but of preeminence in world markets for selected industrial products; import policy sought to keep to minimum adjustment burdens on domestic producers.

The extraordinary capital outflows after 1983 meant that Japan had come to depend on the international economy not only as a market for its growth (export) industries, but also as an outlet for its very high domestic savings. With the decline in domestic investment after the 1960s, the local savings had become exessive.

Figure 2.1
Deregulation of Foreign Securities Investment by Japan



Notes : 1. Subject to prior approval by the MOF.
2. Subject to foreign exchange exposure limit.
3. Includes individuals and non-financial corporations.

Source: Makin, Chapter 1, this volume.

Had Japan been an entirely closed economy, these surplus savings would have produced unemployment and deflation in the short run and an uneconomic use of low-priced capital in the long run. The capital-outflow strategy reinforced the export-led character of Japanese growth. The outflows depressed the value of the yen, added to export sales abroad, and provided, through the foreign-trade multiplier, a further stimulus to domestic growth and employment.

These capital-outflow relaxations helped to frustrate the automatic adjustment of the exchange market to the mounting surplus on current account (Katz, 1983). Some Japanese officials recognized the disequilibrating character of the strategy. Funabashi (1988, p. 87) has reported that when a proposal to control capital outflows was advanced by the prime minister's office, it "was leaked to the press and immediately alarmed U.S. monetary authorities. A high-ranking official of the Federal Reserve Board told a Japanese visitor, 'You terrorized us!' "It would appear that American officials were so anxious to finance the budget deficit and keep the Reagan fiscal program on track that they encouraged Japanese relaxations, however much they might add to the U. S. bilateral trade deficit with Japan.

Can Exchange Rates be Effective?

The inward-looking policies of the key countries produced a breakdown of orderly adjustment in the 1980s. Their officials were not able to stablize the dollar at an appropriate level and within reasonable limits, as they had hoped, nor to activate the broad macroeconomic surveillance machinery they agreed upon at the Tokyo summit in 1986. The continuing ups and downs of the dollar demonstrate that once again—in the 1980s as in the 1960s—market-driven changes in currency values have become, by default, the primary instrument of global payments balance.

Key Role of Exchange Rates

From an international payments point of view, the advantage of a market-driven adjustment mechanism is that it can get the job done: it imposes a symmetry in the burdens between deficit and surplus countries and brings the surplus country actively into the stabilization process. After all, a lower dollar means a reciprocal rise in the values of the yen and the DM. In this way, the partner countries share the economic costs; neither is required to initiate domestic policy changes; and each avoids the domestic political costs of a formal exchange-rate decision. The world has found no other practical way to accomoplish this balancing.

The currency changes since 1985 have been large, but the reductions in external imbalances have been meager. To be sure, by 1988 the volume of trade flows had altered; but the changes do not justify the current official optimism of material improvement. In the first place, the U.S. terms to trade have deteriorated. With a lower dollar, the United States must offer a substantially larger volume of exports merely to pay for an unchanged volume of imports. Second, it must be stressed, the trend in the balances on international inverstment account is running counter to the gains in foreign trade. Japan is moving into a strong surplus and the United States into a growing deficit on current income receipts from abroad. In this situation, attention should be focused on the current account, not the trade balance, and the time perspective a few years ahead after the interest burden has accumulated and not on changes between 1987 and 1988.

Do Exchange Rates Really Not Matter?

The major realignment of currencies since 1985 has not materially improved the external payments of the key industrial countries. The outlook is not hopeful. According to IMF projections for 1990 (made in early 1989), in fact, the U.S. deficit and the surpluses of both Japan and Germany may reach unprecedented levels (see Table 2.1). Does this evidence mean that exchange rate changes no longer affect the balance of payments or the real economies of trading countries?

Krugman (1989, p. 39) has proposed, in an innovative approach to exchange-rate theory in the Robbins lectures, that "we have imperceptibly become accustomed to living in a world in which exchange rates move by huge amounts but the changes have only small effects on anything else." He builds an analytical case around the stickiness of prices of traded goods in which the exporter "once the costs [of entering the foreign market] are sunk . . . will be willing to stay in a market even if . . .able to cover only variable cost" (p. 45).

The cost-sunk approach may be important as a description of the behavior of one type of firm that has provided manufactured goods to the U.S. market, but it does not describe the behavior of firms in such important industries as automobiles or electronic equipment, which have provided the bulk of the growth in U.S. imports since 1980. These firms have increasingly shifted from an export to a made-in-the-United States role. For example, the auto firms began as exporters from Japan on an experimental basis; but they have since built up in succession (1) a dealer network to sell Japanese products, (2) plants to assemble components manufactured in Japan, and (3) plants using so much local U.S. content as to be indistinguishable from the sourcing pattern of "native" U.S. firms. This progression in corporate production strategy has been the firm's response to two factors: the high yen/low dollar and a fear of U.S. import restrictions.

Furthermore, the sunk-cost theory is not convincing as an explanation of what has happened more broadly in the macroeconomy as a result of changes in currency values. Comparison of a cross-section of the world economy in 1980 and again in 1990 would lead many to doubt that "huge swings in exchange rates have had only muted effects on everything else" (Krugman, 1989, p. 36). To argue that the astonishing transformation in the international positions of Japan and the United States was not affected by exchange-rate developments during the 1980s but rested only on the fact that Japanese students study harder or Japanese households save more than their American counterparts is wholly unconvincing. On the contrary, it may well turn out that historians will come to regard the Reagan administration decision to allow the dollar to appreciate to such extraordinary levels between 1981 and 1985 as an error in statecraft comparable in its longer term consequences for the world economy to Churchill's unfortunate decision to peg the pound at $4.86 in 1925.

An Alternative Interpretation

The limited improvements in the payments imbalances since 1985 may mean that changes in currency values have failed as a tool of international adjustment. But this evidence may also be interpreted differently: that exchange rates can not be employed alone but need to be supported by appropriate changes in domestic macroeconomic policy.

Consider two cases: the deficit country with excess demand and the surplus country with lagging demand. Can we realistically expect either of these countries to improve their balance of payments if they do no more than change the value of their currency?

For example, the deficit country may gain an immediate advantage in competitiveness with a lower exchange rate, but it will soon experience additional inflationary pressures from higher import prices and gains in net exports. If the authorities take no action to contain the additional pressures on prices, incomes and wages, domestic inflation is likely to accelerate. In an open economy, however, the acceleration in domestic spending may take the form of growing imports, and not of higher prices. This scenario is illustrated by the United States, whose recent price stability rests excessively upon imports and the trade deficit.

Similarly, the surplus country may experience an immediate loss of competitiveness when the currency appreciates, as well as a slowing of the internal business expansion. Unless the authorities, are prepared to introduce an added domestic stimulus to demand, it is not reasonable to expect the external surplus to moderate. If the sluggishness in home demand is allowed to persist, local exports are likely to become increasingly competitive on foreign markets and the stage may be set for a further round of currency appreciation. The repeated apprreciations of the DM within the European Monetary System over the past decade are evidence of a lower inflation rate, but also of a lower growth path and high unemployment in th German Federal Republic.

Need for Supporting Macroeconomic and Trade-Policy Changes

The lagging payments response to currency changes, in my view, has reflected an unwillingness of policy makers to support them with macroeconomic and foreign-trade measures. In the case of the United States, for example, an excessive reliance on the falling dollar without any check to domestic absorption has led to gains in exports but no improvement on the import side. This dependence on a lower dollar has both domestic and external costs. On the domestic side, it makes the U.S. economy a "bargain basement" for foreign investors and encourages the transfer of capital assets from resident to foreign hands. There has never been a comparable episode in international financial affairs when policy makers and private economists have reacted with such indifference to asset transfers on the current U.S. scale for so trivial a national purpose: to fund excess spending for private and public consumption. If the federal budget were covered by revenue and the imported capital were employed to improve U.S. competitiveness—at home as well as abroad—the inflows would be signs of strength, not weakness, in the U.S. economic position.

This experience indicates that the lower dollar by itself is not likely to restore this country's external position. The disappointing trade picture can only partially be understood in terms of lagging J-curves and delayed price pass-throughs. Only substantial changes in the macroeconomic policy mixes of the key industrial countries are likely to promote tendencies toward external balance. Expectations of a still-lower dollar persist because foreigners fear that U.S. officials will continue to rely primarily on a lower dollar to reduce the external deficit. The unwillingness of the U.S. administration to offer the outside world a credible budget stablization program means that the twin U.S. deficits will remain the major threat to world payments stability.

Policy makers in Germany and Japan, in turn, have been slow to adopt supporting macroeconomic and trade-policy measures. Earlier, between 1980 and 1985, they imposed fiscal restraint and depended on export sales to a booming U.S. market for domestic recovery. It was the U.S. expansion that brought the world economy out of the 1982–83 recession. Had the international community waited for Japan and Germany to act, the recession would have been longer and much more severe. On the foreign trade side, a comparable inactivity can be discerned. These two countries purchased no more than 25 percent of the exports of the developing world, leaving the U.S. a disproportionate—and unsustainable—share of this trade.

Lagging Internal Measures in Germany. The balance-of-payments policies of Germany and Japan have differed. Germany has been experiencing low growth and high unemployment, which its authorities have found no way to overcome. German growth impluses from domestic sources have remained weak, even by European standards, as a result of a political resistance within the country to expanding domestic demand and to accepting urgently needed structural reforms. To be sure, German firms are advanced in technology by international standards, though chiefly in mature and not in frontier industries; but they have chosen to invest heavily in facilities outside the country, both within and outside Europe. Lagging growth and unemployment have made Germany, with its chronic external payments surpluses, a drag on business expansion in neighboring European countries.

Economists have come to agree that structural reforms in Germany would greatly alter Germany's domestic and external payments position. Model simulations carried out at the Kiel Institute have concluded that, with trade liberalization and subsidy reduction, German "GDP could increase by as much as 6 percent and employment by 9 percent, or two million jobs, thus virtually eliminating unemployment." Similarly, the effect of an elimination of agricultural protection under the Common Agricultural Policy "would increase German GDP and employment by up to $3\frac{1}{2}$ percent and $5\frac{1}{2}$ percent, respectively," according to a recent IMF staff study (Lipschitz et al., 1989, p. 52).

Despite the econometric evidence, German officials have not been moved to curtail their surpluses through programs of import expansion. The Bundesbank recently noted: "Germany has basically been a surplus country for $3\frac{1}{2}$ decades, and the consequent net transfer of goods and services is quite appropriate for it," but went on to add: "but previously these surpluses never reached the present scale, and certainly not over a number of consecutive years" (*Report . . . Bundesbank*, 1989, p. 26). Instead of a concern about the global payments balance, German officials are now preoccupied with regional trade matters as they work to remove internal barriers within Europe before the 1992 deadline. This strategy will open an enlarged protected market within Europe for German industry and is likely to lead to larger than to reduced export surpluses.

Rigid Protectionism in Japan. By contrast, Japan has recently acted, to the relief of its trading partners, to set in motion a process of internal structural reform to reduce dependence on export-led growth. The problem in Japan is a pervasive protectionism that limits the extent to which its current-account surplus can be reduced by imports. Long-standing policies of protection on trade and foreign investment are carried out by government regulation, by implementation by inward-looking bureaucrats, and by private-sector resistance to intrusion of foreigners and foreign products into the Japanese economy.

From a nationalist point of view, these restrictive policies have been extraordinarily successful. In investment, for example, they have ensured that Japanese auto production has remained in Japanese hands, and not with General Motors or Ford, as in Europe. In the trade field, this pattern of effecttive protection has favored domestic industry. At present, Japan offers the United States a market mainly for noncompetitive primary products in exchange for Japanese sales of manufactures in the U.S. market. Thus far, Japan has imported freely only raw materials, energy, and noncompetitive foodstuffs.

These obstacles to imports have been reinforced, on the export side, by wage developments in Japan. Daly (1988, p. 15) has estimated that, from 1973 to 1986, "about 70 percent of the increase in productivity has gone to the buyers of manufactured products, and only 30 percent to the workers." He added: "Both real wages and output per hour in Japan were 25 percent of U.S. levels in 1965, but by 1986 the levels of output per hour in Japan were up to about 80 percent of U.S. levels, while real wages were still only 55 percent of levels in the United States." The fall in the yen vis-a-vis the dollar from 1980 to 1985, against the background of such a decline in efficiency wages, is a classic example of the breakdown of the international adjustment process. A rising real exchange rate is the textbook response for a country with falling efficiency wages. This distortion lies at the root of the mammoth growth of Japan's trade surplus with the United States from 1982 to 1986.

Adjustment Mechanisms in Practice. The nationalistic macroeconomic policies of these three countries explains the contradiction between major changes in exchange rates since mid-1985 and only minor payments improvement. Policy makers have not recognized an obligation to speed up external adjustment by domestic action. They failed in the 1980s, as in the 1960s, to agree on common action programs.

American officials contributed to the international deadlock by continuing to tolerate deficits as a way of life, much as their predecessors had done in the 1960s. They concentrated instead on finding ways to finance the twin deficits by exploiting the dollar's acceptability as the world's premier currency. In turn, German and Japanese officials recognized no responsibility as long-standing surplus countries to take steps to expand imports, both by demand measures and by unilateral trade liberalization to raise living standards. They were comfortable with an export-led strategy and growing surpluses until access to the U.S. market was threatened.

Global Adjustment Mechanisms and the Exchange Rate

The sluggish correction of the deficits/surpluses since 1985 raise the question of the effectiveness of exchange rates as an adjustment tool. The fact that officials have placed too great a burden on a lower dollar/higher yen and DM should not lead economists to deny their importance in restoring external balance, any more than the excessive burden often placed on monetary (relative to fiscal) policy should lead them to denigrate its primary role in domestic stabilization.

The prices established in the exchange market under floating have had three tasks: to clear the foreign-exchange market, to provide the basis for orderly competition in foreign trade, and to moderate external payments deficits and surpluses. During the 1980s, the market-clearing crises of the par-value era have been avoided. But the currency alignments established have not been realistic as measures of international price competitiveness nor have they helped much to restore tolerable balance in international payments.

This perversity was the distinctive experience with the exchange rate during the decade. It is evident that the earlier academic confidence in floating as an adjustment mechanism is no longer credible. National policies that are not otherwise coordinated cannot be coordinated simply by allowing currencies to fluctuate on the market. The broad lesson from the experience is a recognition that a "hands off" approach to floating will not ensure international monetary stability.

It is also evident that the industrial countries may attain domestic price stability and still fail to stabilize either currency values or the pattern of world trade. The experience calls in question current IMF arrangements on exchange rates. Back in 1974, it will be recalled, IMF members concluded that exchange rates could not be stabilized by an official pegging commitment nor by agreement upon a global reserve-supply mechanism. Instead, in the Second Amendment to the Articles of Agreement, they defined the obligation of members to address national policies toward orderly growth and reasonable price stability. The key industrial countries attained these goals during the 1980s, but not a tolerable alignment of currencies or an effective balancing mechanism.

Toward Currency and/or Regional Blocs?

The failure of global adjustment mechanisms has induced the industrial countries to turn to regional arrangements for dealing with external payments and currency problems. The German surplus, for example, has become a European problem and is being addressed primarily through European channels of financial negotiation. France and its neighbors are restive about the consequences of their chronic deficits in payments: the high interest rates and the external constraints on domestic policy initiatives. They are concerned about the consequences on their economies of German policies, especially the dependence upon exports for domestic stimulus and the acceptance by Germany of a labor-market policy under which some $2.5 billion is allocated to finance unemployment—that is, for subsidies to the unemployed—and only meager amounts for job creation or worker training within Germany (*Wall Street Journal*, May 15, 1989, p. A–11).

The united States, in turn, is increasingly turning to bilateral and regional negotiations with the Pacific Rim countries. This approach reflects a frustration that the lower dollar since 1985 has neither restored the U.S. payments position nor done more than slightly reduce the rate at which foreign debt is being accumulated. American officials have responded under the Omnibus Trade and Competitiveness Act of 1988 in two ways: (1) under Section 301 to identify Japan, India, and Brazil as partners with unfair trading practices as determined by U.S. standards, which makes these countries subject to bilateral negotiations and—if unresolved—to U.S. retaliation; and (2) under Section 3005, to engage in a bilateral effort to ensure the appreciation of the Taiwan and South Korean currencies.

The scarce-currency clause of the IMF was designed to forestall precisely this type of unilateral sanction against surplus countries. American officials have moved in this direction because the IMF has failed to find ways to engage chronic surplus countries in serious adjustment negotiations. After all, the gap in IMF treatment of members with deficit and surplus positions remains a glaring inequality. Thus, a member seeking IMF assistance is subject to specific constraints:

- to undergo a review of its stabilization program by the IMF's executive board;
- to accept performance criteria as constraints on macroeconomic priorities as a condition of Fund assistance; and
- to make explicit in a letter of intent by the finance minister a formal government commitment to function within the terms of the agreed program.

For members with payments surpluses, by contrast, "the main tool at the Fund's disposal has been . . . moral suasion" (Camdessus, 1988, p. 338). This dependence upon the enlightened self-interest of the surplus member is not necessarily an unrealistic policy. U.S. officials had in mind that such countries would find it greatly in their own interest to follow "good creditor" policies when they first proposed the scarce-currency clause in 1943. Keynes described the thinking and motivation in these words:

> We, in fact, suggested something rather milder. For we had doubts, and in fact still have doubts, whether Congress can be expected, if they understand it, to swallow anything so extreme. Nevertheless, the U.S. Treasury, the State Department and the Federal Reserve Board quite deliberately prefer this ruthless provision, since in their view it is essential, if the United States is to be brought to do what it should, to create a really serious crisis. They think that this clause will make it necessary to find some way of preventing it coming into effect (see Harrod. 1951. p. 571).

An alternative approach—to have the IMF proceed with punitive action and not depend upon creditor goodwill—does not seem practical. Fund officials can hardly, on the one hand, seek additional funding from surplus countries and, on the other, formally rebuke them for their policies. In practice, creditor countries establish the terms on which the IMF can have access to their currencies, whether it is provided through a general increase in quotas or through special credits.

The voluntary "good creditor" approach to adjustment requires creditor countries to initiate stabilization programs as a responsibility of leadership. An orderly world trading system in the 1980s required a growth of imports by the surplus countries to ease the international effects of their remarkable growth in exports, both by domestic expansion and by trade relaxations. Instead, these countries have relied on a continuing undervaluation of their currencies as the underpinning of an export-led growth strategy. Currency undervaluation proved to be as characteristic of the period as competitive depreciation was characteristic of the 1930s. It was a pervasive mercantilism in official policy that led Pickens (1989, p. B–4) to conclude, in the case of Japan, that it "wants to live by a double standard. It wants open markets in which to sell and invest, but it doesn't want to provide the openness at home on which stable global trading relations must depend in the long run . . . I am convinced that Japan will never be a meaningful market for our products."

Can Global Mechanisms be made More Effective?

The trend toward bilateralism and regional fragmentation can be arrested only if the mechanisms for global adjustment can be strengthened and made more effective. Officials of the G–7 countries have sought to reinvigorate the global tendencies in action along two lines. First, they continue efforts to stabilize and "manage floating currencies without establishing formal pegging commitments. Second, members are studying ways to broaden international surveillance procedures within the IMF.

There is a deep-seated resistance to both these approaches. They meet a healthy skepticism that effective international constraints are too difficult both to define and to impose. After all, policy coordination would require officials to accept limits they have so far refused to consider: a willingness on their part to accept on international grounds constraints that they would not accept on domestic ones.

At the same time, the momentum of group efforts to stabilize currencies has raised for U.S. officials a difficult problem: should they abandon the only instrument that they have that is certain to engage the surplus countries as full partners in any effort to restore stability in international payments? This dilemma explains the continuing public debate in Washington between a stable dollar and a lower-dollar approach to international monetary policy. Since early 1987, the dollar-stabilization advocates have been in the ascendancy, largely because the United States remains dependent on foreign capital inflows on a massive scale.[2]

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[2] The focus of the policy debate in this country shifted as the dollar was steadily pushed up in early 1989 as a result of high U.S. interest rates and the rising stock market. In late September, officials of the G-7 countries concluded that the movements of the dollar rate were

Dollar stabilization has made it easier for the monetary authorties to maintain the inflow without having to advance domestic interest rates on balance-of-payments grounds. But this same policy can only further slow the improvement of the U.S. trade accounts. In this sense, it remains a policy to drift. On the other hand, a lower dollar without a check to absorption is not likely to restore the external position.

The momentum toward fragmentation can best be slowed if ways can be found to ensure that the key countries–deficit and surplus alike—are prepared to respond more promptly than at present to external imbalances. The need for speedier responses can be gauged by a single indicator: the swing in the tradeweighted dollar from an index of 90.16 in January 1981, to 164.50 in February 1985, to 86.04 in January 1988, and to 104 in May 1989 (see Table 2.1). Currency misalignments and fluctuations of this magnitude are a major force behind the breakup of the international system. What this evidence confirms is not currency chaos but adjustment chaos. It will not be corrected merely by the reform of exchange-rate arrangements.

If officials cannot make progress toward more effective adjustment, then the pattern of currency alignments and the adjustment process itself will continue to be dominated by market-driven forces of economic disturbance. This is the same challenge the world community faced during the 1930s and that produced the original Bretton Woods arrangements. In his classic review of currency fluctuations between 1930 and 1936, Nurske (1944) pointed out that at the end of 1936—in contrast to the situation in 1932 and 1934—exchange-rate relationships among the principal free currencies were not widely different from what they had been in 1930, before the cycle of devaluation began. He then asked: "What then was the significance of this whole cycle? Was any good purpose served by the successive shocks to international currency relations, was there any need for going through such violent disturbances if the outcome in terms of exchange rates differed so little from the starting point?" (p. 128).

It is clear that the IMF and other operational arrangements have failed to deal effectively with the adjustment of external payments among the trading countries. The roots of this failure can be found in the practices of two groups of IMF members that continue to regard adjustment behavior as an autonomous and voluntary policy area, not an appropriate subject for international surveillance: members with chronic surpluses and those with deficits that require no IMF financial assistance. This attitude has limited the fund's role in the international adjustment process to establishing the terms and conditions of access to its credit facilities.

"inconsistent with economic fundamentals" and joined together in a surprise and massive round of dollar sales on September 25. Opposition to this strategy was made public when the vice-chairman and a second member of the Board of Governors of the Federal Reserve voted against an authorization to increase its holdings of foreign currencies from $18 billion to $20 billion in a meeting of the Federal Open Market Committee on the specific ground that "such authorization facilitates exchange rate intervention to drive the dollar lower" (Federal Reserve press release, October 6, 1989, p. 18).

The adjustement experience of the 1980s has been disastrous precisely because these countries have focused too much upon domestic priorities. The costs of their strategy have been the economic inefficiencies of the decade: extraordinary misalignments of currency values, structural dislocations in traded goods industries, and a growing network of restrictions. The countries have a choice: to accept an additional measure of international constraint or to resign themselves to an accelearating process of global economic fragmentation—through continued distortions in relative currency values, through additional controls over commodity and financial transactions, and through crisis measures to counter and contain disturbed conditions in major financial markets.

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TRANSFER PROBLEMS IN A MULTI-COUNTRY WORLD: ENDOGENOUS, OPTIMAL AND COORDINATED AID

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In a general equilibrium framework, using duality theory, various implications of transfers are discussed. For example, what is the effect of a transfer (or aid) on the welfare of the donor and recipient if the amount of the transfer depends on the income of the donor country. We show that the welfare effects and terms-of-trade effects are in most cases smaller than in the case of an exogenous transfer. Are coordinated transfers better, from a welfare point of view, for the donor or the recipient than bilateral transfers? Is there an optimal way of giving or accepting a transfer? The answers to these questions depend to a large extent on whether goods are exported, differences between countries with respect to their marginal propensities to consume and the changes in the terms-of-trade.

1. Introduction

It is by now well known that transfers might be immiserzing. This is not merely a theoretical curiosity, but can be a normal result of a three-agent or three-country model, as has been shown by Bhagwati, Brecher and Hatta (1983)[1]. This result is in contrast with earlier outcomes of two-agent models, where an income transfer always makes the donor of a transfer worse off than he was before. The only restriction in these models is that walrasian stability is required (Dixit and Norman, 1980, pp. 129–33).

Intuitively the paradoxical results are not difficult to understand and depend to a large extent on the terms-of-trade effect. Suppose, we have three regions an

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[1] These authors also give a survey of the earlier literature on the transfer problem. See also Berthelemy (1988), Chichilnisky and Heal (1986, Ch. 12) and Kemp and Kojima (1985). It should, however, be noted that the transfer problem which is discussed in these general equilibrium studies differs from what is often called the transfer problem in textbooks like Ethier (1988, p. 268–270). These textbooks are concerned with the question of whether or not a financial transfer generates an equal trade surplus and what the consequences are on the terms-of-trade and do not discuss general equilibrium consequences of transfer.

industrial and relatively rich region, a newly industrializing region and a poor region. After a transfer from the rich region to the developing region has been given, the rich region benefits from giving a transfer if the developing region intensively consumes the export good of the donor. The price of this good rises and the terms-of-trade effect can compensate the donor for the initial welfare decline of the transfer. If the non-participating region also is a net importer of the donor's export good then the total terms-of-trade effect works even more in favour of the donor.

If the donor region or country benefits from a transfer a number of questions and political opportunities are raised for the countries involved. What will happen, for instance, if the donor tries to optimize its welfare at the expense of other countries? Or, and more realistically, the donor wants to give aid to less-developed regions to help these regions with their economic development but, for political reasons, wants to be no worse off then he was before the transfer; will the recipient benefit from this 'restricted' transfer or will it loose? Furthermore, if there are no paradoxical results, that is to say the recipient gains from the transfer and the donor loses, could he reduce his individual loss by engaging other parties in simultaneously giving aid? Or, to put it differently, is coordinated aid better then bilateral aid from the donor's point of view? What is better for the recipient? We will try to answer these and related questions in a general way using duality theory and by adapting the model developed by Bhagwati et al. (1983).

To make the model more realistic we will make the transfer given by the donor dependent on its income. War damage repayments aside, most transfer payments nowadays are development-aid flows.

The remainder of the paper proceeds as follows. First, in part 2, we will describe a generalized version of the model developed by Bhagwati et al. (1983). The model describes the effects of a transfer in a n-country setting with two goods and endogenizes the transfer. In part 3 we will discuss the general consequences of the model followed by the answering of the questions raised above in part 4. Finally, we discuss the results in the concluding paragraph.

2. The Model

We will assume a world in which there are two goods, which are produced and consumed in all $n \geq 2$ countries, which will be labeled 1, . . . ,n. Unless otherwise stated country 1 makes a transfer to country 2. Furthermore, all markets are perfectly competitive.

The following notation will be used:

X, Y	goods X and Y respectively; good Y is the numeraire
p	the relative price of good X
$u^i(X, Y)$	the welfare level of country i
$e^i(p, u^i)$	expenditure function of country i
$r^i(p)$	revenue function of country i

$c^i(p, u^i)$	compensated consumption function of good X by country i
$x^i(p)$	production function of good X in country i
$m^i(p, u^i)$	compensated import demand function for good X by country $i(i.e.\ m^i = c^i - x^i)$
T_r	total transfer $T_r = T + T_a$
T	endogenous transfer; $T = T[e^1(p, u^1)]$
T_a	exogenous transfer
i	country index from 1 to n.

The way we model the transfer deserves some comment. The transfer given by country 1 consists of two parts: an endogenous part and an exogenous part. Country 1, say the rich country, feels the moral obligation to give aid to the poor country, country 2. The richer country 1 gets, the more aid it will give. This is consistent with the United Nations target that the Official Development Assistance (ODA) should be 0.7 percent of GNP for the richer countries[2]. In the model this is represented by $T[e^1(p, u^1)]$. The political process can result in deciding, for whatever reason, to give an extra exogenous amount of aid, represented by T_a. Hence the total transfer from country 1 to country 2 is:

$$T_r = T[e^1(p, u^1)] + T_a \tag{1}$$

Result

From duality theory it is known[3]:

$$e_p^i = c^{i,} \text{ for } i = 1, \ldots, n$$

$$r_p^i = x^i, \text{ for } i = 1, \ldots, n$$

Normalization

We will normalize by setting $e_u^i = 1$, for $i = 1, \ldots, n$. This can be achieved by a monotone transformation of the utility function in each country.

Furthermore, we will assume that $0 \leq T_e < 1$, i.e. if a country earns more it will not give all of its extra earnings away. Our model consists of the following equations:

$$e^1(p, u^1) - r^1(p) + T[e^1(p, u^1)] + T_a = 0 \tag{2}$$

$$e^2(p, u^2) -= r^2(p) - T[e^1(p, u^1)] - T_a = 0 \tag{3}$$

$$e^i(p, u^i) - r^i(p) = 0, \qquad i = 3, \ldots, n \tag{4}$$

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[2] United Nations resolution 2626 (XXV), 1970.

[3] Notation: The derivative of a function will be denoted by a subindex, e.g. the derivative of expenditure with respect to utility in country 3, $\partial e^3/\partial u$, is: e_u^3.

$$\sum_{i=1}^{n} m^i(p, u^i) = 0 \tag{5}$$

Equation (2) says that the donor, country 1, cannot spend more than its earnings minus the transfer given to country 2. Debts and stock-piling are absent from our model. Similarly, equation (3) indicates that the recipient, country 2, can increase its expenditure by the amount of the transfer. All other countries cannot spend more than they earn (equation (4)). Finally, equation (5) represents the global market-clearing condition for good X (and hence, by Walras's Law, for good Y). The model consists of $n+1$ equations and has $n+1$ endogenous variables (u^i, $i = 1, \ldots, n$ and p).

Main Result

Now we can derive the following result:

$$\frac{dp}{dT_a} = \frac{m_u^2 - m_u^1}{(1+T_e)\Omega - x^1 T_e(m_u^2 - m_u^1)} \tag{6}$$

$$\frac{du^1}{dT_a} = \frac{1}{1+T_e}[-1 - (m^1 + T_e c^1)\frac{dp}{dT_a}] \tag{7}$$

$$\frac{du^2}{dT_a} = \frac{1}{1+T_e}[1 - (m^2 + T_e c^1)\frac{dp}{dT_a} - T_e(m^1 + m^2)\frac{dp}{dT_a}] \tag{8}$$

$$\frac{du^j}{dT_a} = -m^j\frac{dp}{dT_a}, \text{ for } j = 3, \ldots n \tag{9}$$

with $\quad m_p \equiv \sum_{i=1}^{n} m_p^i \quad$ and $\quad \Omega \equiv \left[\sum_{i=1}^{n} m^i m_u^i\right] - m_p.$

Proof

Taking the total differential of (2)–(5) and using our notational conventions we obtain:

$$\begin{bmatrix} 1+T_e & 0 & \ldots & 0 & m^1 + c^1 T_e \\ -T_e & 1 & 0\ldots & 0 & m^2 - c^1 T_e \\ 0 & 0 & & & m^3 \\ \vdots & \vdots & \vdots & \vdots & \vdots \\ \vdots & \vdots & \vdots & 0 & \vdots \\ 0 & 0 & \ldots 0 & 1 & m^n \\ m_u^1 & m_u^2 & \ldots & m_u^n & m_p \end{bmatrix} \begin{bmatrix} du^1 \\ du^2 \\ \vdots \\ \vdots \\ \vdots \\ du^n \\ dp \end{bmatrix} = \begin{bmatrix} -1 \\ 1 \\ 0 \\ \vdots \\ \vdots \\ \vdots \\ 0 \end{bmatrix} dT_a$$

Applying Cramer's rule to this system it is straightforward to derive the above results[4].

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[4] Detailed calculations are available from the authors upon request .

Exogenous Transfers

In the case of pure exogenous transfers the results reduce to (note that, in order to make distinction later on easier, we write dT in stead of dT_a):

$$\frac{dp}{dT}=\frac{m_u^2-m_u^1}{\Omega} \tag{10}$$

$$\frac{du^1}{dT}=-1-m^1\frac{dp}{dT} \tag{11}$$

$$\frac{du^2}{dT}=1-m^2\frac{dp}{dT} \tag{12}$$

$$\frac{du^j}{dT}=-m^j\frac{dp}{dT}, \text{ for } j=3,\ldots,n \tag{13}$$

Proof

Put $T_e \equiv 0$ in equations (6)–(9). These are the same results as have been obtained by Bhagwati et al. (1983).

3. Discussion

A first remark concerning the sign of Ω is in order. Ω equals *minus* the slope of the general equilibrium excess-demand schedule of good X[5]. So if the world is Walrasian stable Ω is positive. This will be assumed to be the case in the remainder of this paper. Furthermore, if we look at the denominator of dp/dT_a in equation 6 we see Ω multiplied by a positive term and a term with an ambiguous sign deducted from it. We will assume this denominator to be positive, which facilitates the derivation of the results and is an extension of the stability condition.

3.1 Welfare influence of the Transfer

What is the effect of endogenizing the transfer with respcet to the results derived by Bhagwati et al. (1983)? The results by these authors are easy to interpret and are represented by equations (10)–(13). First, if one unit of purchasing power is transferred from the donor to the recipient, abstracting from price effects, the donor loses one unit of welfare and the recipient gains this unit (hence the '–1', in equation 11 and the '+1' in equation 12). If the price of good X rises all countries that export good X enjoy a welfare increase, due to the terms-of-trade effect (see equation 13, recall that country j exports good X if $-m^j$ is positive). Mutatis mutandis for a decrease in the price of good X. This effect extends to all countries, including country 1 and 2.

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[5] Let v^1 be the indirect utility function of country 1. The uncompensated global excess-demand for X is $m^1(p, v^1)+\ldots+m^n(p, v^n)$. If we differentiate this with respect to p, using Roy's identity and our normalization, we have: $m_p^1+m_u^1v_p^1+\ldots+m_p^n+m_u^nv_p^n=m_p-m^1m_u^1-\ldots-m^nm_u^n=-\Omega$..

Turning to the effects of endogenizing the transfer, equations (6)–(9), the consequences are most easily interpreted if one abstracts, for the time being, from price changes. This means that the price of good X does not change and that the welfare in the countries $3, \ldots, n$ is not affected. The welfare in country 1 is decreased by $1/(1+T_e)$ and the welfare in country 2 is increased by the same amount. Compared to the exogenous case the welfare of country 2 is increased less and of country 1 is reduced less. A dampening effect has occurred. To understand why, consider country 1 giving 1 extra unit of (autonomous) aid. Its expenditures will have to be reduced by 1 unit. But then its (endogenous) aid will decrease by T_e units. Therefore its expenditures will increase by T_e units. Hence its (endogenous) aid can increase again by T_e^2 units, etc. Adding up all these transfers leads to a 'final' transfer of: $1 - T_e + T_e^2 - T_e^3 + T_e^4 - \ldots = 1/(1+T_e)$.

In general, with price changes the welfare effect for country 1 consists of three parts. Recall equation (7):

$$\frac{du^1}{dT_a} = \frac{1}{1+T_e}\left(-1 - (m^1 + T_e c^1)\frac{dp}{dT_a}\right) \tag{7}$$

First, one unit of purchasing power is given to country 2 (the '–1' in equation (7)). Second, there is the general terms-of-trade effect, $-m^1 dp/dT_a$, which all countries face. Third, there is the second-order effect of an extra transfer due to the change in expenditures due to the price change, $-T_e c^1 dp/dT_a$. Finally, all terms are multiplied by the dampening factor, $1/(1+T_e)$.

Consider the welfare effect for country 2; recall:

$$\frac{du^2}{dT_a} + \frac{1}{1+T_e}\left(1 - (m^2 + T_e c^1)\frac{dp}{dT_a} - T_e(m^1 + m^2)\frac{dp}{dT_a}\right) \tag{8}$$

Four effects are visible. First, there is the receipt of a unit of aid. Second, we have the terms-of-trade effect of the transfer for country 2, $-m^2 dp/dT_a$. Third, there is the extra aid received from country 1 due to the increase in expenditures in country 1 due to the price change, $T_e c^1 dp/dT_a$. Fourth, there is the terms-of-trade effect of this transfer for countries 1 and 2 combined vis a vis the rest of the world, $-T_e(m^1 + m^2)dp/dT_a$, which all goes to country 2 because that part of the transfer is related to the donor's consumption. Again, all effects are multiplied by the dampening factor.

The following proposition will be helpful[6].

Proposition 1

The sum of the welfare changes is zero.

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[6] This proposition is not intended to give a value judgement as to the usefulness of a transfer. It merely indicates that, given our normallization, giving equal weight to the welfare changes in all countries means that any transfer is welfare-neutral. Of course a general welfare function, derived from the individual countries's welfare functions, may not exist. Or anyone who defines one might give different weights to different countries. More on this in the appendix.

Proof

Define $1/(1+T_e) \equiv \alpha$ and $dp/dT_a \equiv \tau$. The sum of the utility changes is:

$$\alpha(-1 - m^1\tau - T_e c^1\tau) + \alpha(1 - m^2\tau + T_e c^1\tau - T_e m^1\tau - T_e m^2\tau) - m^3\tau - \ldots - m^n\tau$$

$$= -\alpha(1+T_e)m^1\tau - \alpha(1+T_e)m^2\tau - m^3\tau - \ldots - m^n\tau$$

$$= -\tau(m^1 + \ldots + m^n) = O$$

This reflects the fact that any change in the income distribution causes a change along the world transformation frontier from one Pareto-Optimal equilibrium point to another Pareto-Optimal equilbrium point.

3.2 Terms-of-Trade effects of the Transfer

In the discussion above we mentioned price changes without specifying under what conditions these price changes will occur. From equation (6) it follows that if $m_u^2 > m_u^1$, the price of X rises. Differences in the m_u^j-terms can easily be interpreted as differences in the marginal propensities to import good X by country j. The marginal propensity to import good X in country 1, for example, is by definition the portion of an extra dollar spent on X, i.e. $p\, m_e^1 = p\, m_u^1/e_u^1 = p\, m_u^1$. So the higher the marginal propensity to import X in country 2 relative to the marginal propensity to import X in country 1, the higher the price rise of X. Intuitively this makes perfect sense. If income is transferred to a country with a higher marginal propensity to consume good X, the price of good X will rise.

We discussed previously, in the absence of price effects, the dampening effect that endogenizing transfers has on the welfare changes of both country 1 and 2. This extends, in most cases, to the price change as well. We will say dampening occurs if the absolute value of the price change in the case of exogenous transfers is bigger than in the case of endogenous transfers.

Propoposition 2

Dampening with respect to the price change occurs if the price change in the case of exogenous transfers is not 'too big'; a necessary and sufficient condition is that $dp/dt < 1/x^1$.

Proof

$$\left|\frac{dp}{dT_a}\right| = \left|\frac{m_u^2 - m_u^1}{(1+T_e)\Omega - x^1 T_e(m_u^2 - m_u^1)}\right| < \left|\frac{m_u^2 - m_u^1}{\Omega}\right| = \left|\frac{dp}{dT}\right|$$

$$\Leftrightarrow \qquad \left|\frac{1}{(1+T_e)\Omega - x^1 T_e(m_u^2 - m_u^1)}\right| < \left|\frac{1}{\Omega}\right|$$

The denominators are positive by assumption, hence we get:

$$(1+T_e)\Omega - x^1 T_e(m_u^2 - m_u^1) > \Omega$$

$$\Leftrightarrow \qquad (1+T_e) - x^1 T_e(m_u^2 - m_u^1)/\Omega > 1$$

$$\Leftrightarrow \qquad (1 + T_e) - x^1 T_e dp/dT > 1, \qquad \text{or} \qquad dp/dT < 1/x^1$$

This condition reflects a revenue condition. Recall that $r_p^1 = x^1$, so we have $r_p^1 dp/dT < 1$, i.e. the revenue should not rise 'too much' due to a transfer. Note that if country 1 does not produce good X dampening will always occur.

4. Coordinated Aid and other Policies

In this section we will discuss different possible transfer policies and limitations to these policies. We will restrict our attention to a world consisting of three countries[7]. Country 1, a rich country, gives a transfer (aid) to country 2, a poor country. The rest of the world is considered to be country 3. Unless otherwise specified the discussion concerns the case of exogenous transfers[8].

Proposition 3

If country I gives a transfer subject to the condition that its welfare should not decrease then the recipient's welfare increases if and only if the rest of the world is worse off.

This follows directly from the fact that the sum of the welfare changes equals zero. Country 1 can be no worse off if and only if the terms of trade effect works in its favour. If the recipient exports the same good it can never be worse off (since then, obviously, the terms-of-trade effect also works in favour of the recipient). One of the reasons the rest of the world does not respond might be that it is build up of many different countries and the effect is spread among various countries such that each of them individually only have to take a small welfare loss. Furthermore, in reality the recipient is likely to export the good that the donor is importing. In this case both countries can only gain by the transfer if the donor's export of good X is greater than the recipient's import of good X.

Proposition 4

If a country has decided to give aid but can choose between several potential recipients, it will choose the recipient with the highest marginal propensity to consume the export good of the donor country.

This follows from (11) and comparing potential recipients. It implies that the terms-of-trade effect for the donor country is minimized in the case it is harmful and is maximized in the case it is beneficial. If we assume, for example, that the (industrial) donor country is rich in human capital and exports (human-)capital intensive goods, it will be better for the donor to give aid to Newly Industrializing Countries who are already fulfilling the basic needs of their population and have a high marginal propensity to import (human-)capital intensive goods. Naturally, we do not mean to say that poorer countries should not be helped, but from the donor's point of view the welfare loss is larger. Mutatis mutandis we also have.

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[7] Straightforward extensions to more countries are given in footnotes.
[8] Most results extend to the endogenous case.

Proposition 5

If a recipient can choose between different donors it will choose the donor with the lowest marginal propensity to consume its export good.

In the case of welfare losses for the donor it might be worthwhile for this country to find ways to reduce its welfare loss. One obvious way is to coordinate the aid efforts with other potential donors. We will say that two countries give coordinated aid if they both simultaneously decide to give aid to another country. We arrive at the following result.

Proposition 6

Coordinated aid is better for a donor country unless it is a large exporter and the price effect of its coordination partner is extremely disadvantageous relative to its own price effect.

We have to compare the welfare effect for country 1 of coordinated aid with bilateral aid from country 1 to country 2. Assume that countries 1 and 3 give aid to country 2, where country 1 gives β-units of aid and country 3 gives (1 – β) units of aid. Compare this with bilateral aid from country 1 to 2 of one unit of aid. Define dp_1 to be the price change if 1 gives bilateral aid to 2 and let dp_3 be the price change if 3 gives bilateral aid to 2. Coordinated aid is better for country 1 if and only if:

$$\beta(-1 - m^1 dp_1) + (1 - \beta)(-m^1 dp_3) > (-1 - m^1 dp_1)$$

$$\Leftrightarrow \qquad 1 > m^1(dp_3 - dp_1)$$

Suppose country 1 imports good X (so m^1 is positive). In order for bilateral aid to be better for country 1 we need $(dp_3 - dp_1)$ to be positive so we need a large relative price rise for the import good of country 1. Mutatis mutandis in case good X is the export good[9].

As in the case of donor countries the recipient too could benefit from coordinated aid. In this case we find the semi-paradoxical result that:

Proposition 7

If the recipient perfers coordinated aid to bilateral aid it prefers bilateral aid in the first place.

Suppose country 2 prefers coordinated aid from countries 1 and 3 to aid solely from country 1. Suppose, furthermore, that country 1 gives a fraction β of aid and country 3 gives a fraction (1 – β) of aid. Country 2 prefers getting this transfer to getting a whole unit of aid from country 1 alone if and only if:

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[9] The condition for coordination being better for country 1 can also be written as: $\Omega + m^1(m_u^3 - m_u^1) > 0$. This comes close to our stability condition. For what it is worth we consider it 'not likely' for the reverse to hold. In case more countries, say 1, . . . ,1, are involved in coordination, with relative shares w_1, $1 = 1, \ldots, 1$ and $w_1 + \ldots + w_1 = 1$. Country 1 is better off coordinating if and only if (dp_1 is 1's price effect in the case of bilateral aid): $1 > m^1[q_2\, dp_2 + \ldots + q_1 dp_1) - dp_1]$, where $q_1 \equiv w_1/(1 - w_1)$, for $1 = 2, \ldots, 1$ and $q_2 + \ldots + q_1 = 1$.

$$\beta\left(1 - m^2\frac{m_u^2 - m_u^1}{\Omega}\right) + (1-\beta)\left(1 - m^2\frac{m_u^2 - m_u^3}{\Omega}\right) > 1 - m^2\frac{m_u^2 - m_u^1}{\Omega}$$

$$\Leftrightarrow \qquad -m^2\frac{m_u^2 - m_u^3}{\Omega} > -m^2\frac{m_u^2 - m_u^1}{\Omega}$$

Suppose country 2 exports X, then the condition is fulfilled if $m_u^3 < m_u^1$, i.e. if the other country (country 3) has a higher marginal propensity to consume the export good of the recipient. But then the recipient would prefer to get bilateral aid from country 3 to getting coordinated aid from country 1 and 3 together and thus from country 1 alone (see also proposition 5)! This peculiarity does not occur if more countries are involved in the coordinated aid effort[10].

One of the problems concerning aid is the problem of tying aid by the donor. Frequently donors only give aid with the proviso that the recipient is obliged to buy a certain amount of goods provided by the donor. It is generally believed that this incurs a welfare loss to the recipient, but is advantageous for the donor (see e.g. Ansari and Singer, 1982). This general belief is right if goods are normal.

Proposition 8

If a donor gives tied aid, i.e. the recipient should spend it on the donor's export good, this mitigates the donor's loss or increases his gain provided both goods are normal goods.

Suppose country 1 gives tied aid in the above mentioned fashion and exports good Y. The recipient's marginal propensity to consume good X is zero and the price effect is $(O - m_u^1)/\Omega < O$, as long as good X is not an inferior good for the donor. Hence the donor's loss is mitigated or his gain is increased. Usually, however, countries giving tied aid tend to try to promote their weak industries, i.e. not the ones in which they have a comparative advantage (their export industries). Acting this way, then, means that they are maximizing their loss or minimizing their gain.

Note that our form of tied aid assumes that the recipient will consume what he did before the transfer plus one unit of good Y (if that is the donor's export good) or plus $1/p$ units of good X (if that is the donor's export good). Naturally, this is a very restricted form of tied aid.

Finally, the theorems on immiserizing growth amount to:

Proposition 9

Suppose a ship, owned by country 1, containing good Y is under way to another

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[10] Suppose countries 1,..,1 give coordinated aid to country n, with relative weight w_1, $1 = 1, \ldots, 1$, with $w_1 + w_2 + \ldots + w_1 = 1$. Then the recipient, country n, would prefer to get *a* unit of coordinated aid to getting a unit of aid from country k alone (assuming n exports good X) if and only if: $w_1 m_u^1 + w_2 m_u^2 + \ldots + w_1 m_u^1 > m_u^k$, i.e. if the appropriately weighted marginal propensity to consume country n's export good is larger for the coordinated action then for the bilateral action. Naturally country n still prefers to get bilateral aid from the country with the highest propensity to consume its export good.

country and sinks in the ocean. Country 1 might be better off if it exports good Y.

Delete the transfer term in equation (3) to get the result that $dp/dT = -m_u^1/\Omega$. The welfare effect for country 1 is still $-1 - m^1 dp/dT$.

5. Conclusions

As we have seen numerous interesting questions concerning transfers, most of which pertain to political issues, can be answered by a general equilibrium model. Important to bear in mind is that in a sense the transfer problem is a zero-sum game: the sum of the welfare changes is always zero. So if a country gains in the transfer process there is always one that loses from it. In general countries can only gain if the terms-of-trade change in favour of their export good. However in a world of $n > 2$ countries bilateral aid can be beneficial to both participating countries whether or not the recipient is importing the donor's export good or exporting it. In any case tying aid to weaker sectors in the donating country always reduces its welfare.

Endogenizing transfers has one major result: the terms-of-trade effect and the welfare changes are smaller than in the case of an exogenous transfer. This results from the fact that a transfer initially reduces the donor's income which reduces the amount of the transfer.

Coordinated aid, furthermore, can reduce possible harmful effects of a transfer both from the donor's point of view and from the recipient's point of view. So if one is not certain of the welfare effects from transfers, an optimal way to give aid is to coordinate the transfers.

APPENDIX A

It may not be entirely clear why a transfer is given in the first place. Even though none of the recent literature on transfers[11] addresses the issue, it is important. A few remarks are in order.

The body of this paper is not concerned with the reason for giving a transfer, but with the welfare consequences for specific countries of giving a transfer. Given certain side conditions we analyze the outcomes of a transfer for a country; to whom to give a transfer or from whom to receive a transfer.

Studies in development economics indicate that probably the major reason for giving a transfer to a specific country, selfish reasons like proposition 4 aside, is the genuine concern about the low welfare level of the potential recipient. Any decision rule should, therefore, take into consideration the welfare level of the receiving country. We do not observe, in reality, countries giving away their entire GNP, therefore maximizing the receiving country's welfare can't be the decisionmakers's only objective. At least the welfare level of the donor is important too. By far the easiest way to model the above remarks is by assuming a general welfare function for the donor, W, with the individual countries's welfare levels as its arguments. Let $u = (u^1, u^2, \ldots, u^n)$. Then the general welfare function is given by:

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[11] E.G. Bhagwati et. al., (1983), Kemp and Kojima, (1985), Majumdar and Mitra, (1985), Safra, (1984), or Dixit, (1983).

$$W = W(u) \tag{A.1}$$

Let w_i be the derivative of W with respect to the i-th argument, evaluated at the intial equilibrium, where W is rescaled such that $w_1 + \ldots + w_n = 1$, i.e. w_i is the relative importance of country i in the general welfare function. We assume w_i to be nonnegative for all i. Now, a transfer will be given if and only if $dW/dT > O$, which is the case if and only if:

$$[1/(1+T_e)](w_2 - w_1)(1 + x^1 T_e dp/dT) > (dp/dT) \sum_{i=1}^{n} w_i m^i$$

Note that if price effects are absent, i.e. $dp/dT = O$, a necessary condition for giving a transfer is $w_2 > w_1$. Hence more weight should be given to increasing the recipient's welfare than to increasing the donor's welfare, which was to be expected. The propositions we derived earlier can be put in this framework by either assuming $w_1 = 1$ or $w_2 = 1$.

APPENDIX B

This appendix will derive the main result.
Recall system (2)–(5)

$$e^1(p, u^1) - r^1(p) + T[e^1(p, u^1)] + T_a = 0 \tag{2}$$

$$e^2(p, u^2) - r^2(p) - T[e^1(p, u^1)] - T_a = 0 \tag{3}$$

$$e^i(p, u^i) - r^i(p) = 0, \; i = 3, \ldots, n \tag{4}$$

$$\sum_{i=1}^{n} m^i(p, u^i) = 0 \tag{5}$$

Differentiating gives:

$$\begin{bmatrix} 1+T_e & 0 & \ldots & 0 & m^1 + c^1 T_e \\ -T_e & 1 & 0\ldots & & m^2 - c^1 T_e \\ 0 & 0 & & & m^3 \\ & & & 0 & \vdots \\ 0 & 0 & \ldots 0 & 1 & m^n \\ m_u^1 & m_u^2 & \ldots & m_u^n & m_p \end{bmatrix} \begin{bmatrix} du^1 \\ du^2 \\ \\ \\ du^n \\ dp \end{bmatrix} = \begin{bmatrix} -1 \\ 1 \\ 0 \\ \vdots \\ \vdots \\ 0 \end{bmatrix} dT_a$$

with $m_p \equiv \sum_{i=1}^{n} m_p^i$ and define $\Omega \equiv \left(\sum_{i=1}^{n} m^i m_u^i \right) - m_p$

$$\begin{vmatrix} 1 & 0\dots & 0 & a_1 \\ 0 & & & \vdots \\ \vdots & & 0 & \vdots \\ 0 & \dots 0 & 1 & a_n \\ b_1 & & b_n & m_p \end{vmatrix} = m_p - \sum_{i=1}^{n} a_i b_i$$

Proof:

$$\begin{vmatrix} 1 & 0\dots & 0 & a_1 \\ 0 & & 0 & \vdots \\ \vdots & & & \vdots \\ 0 & \dots 0 & 1 & a_n \\ b_1 & & b_n & m_p \end{vmatrix} = \begin{vmatrix} 1 & 0\dots & 0 & a_2 \\ 0 & & 0 & \vdots \\ & & & \\ 0 & \dots 0 & 1 & a_n \\ b_2 & & b_n & m_p \end{vmatrix} + (-1)^{n+2} b_1 \begin{vmatrix} 0 & \dots & 0 & a_1 \\ 1 & 0\dots & 0 & a_2 \\ 0 & & \vdots & \vdots \\ & \dots 0 & 0 & \vdots \\ 0 & & 0\ 1 & a_n \end{vmatrix}$$

$$= \begin{vmatrix} 1 & 0\dots 0 & a_2 \\ 0 & 0 & \vdots \\ & & \\ 0 & \dots 01 & a_n \\ b_2 & b_n & m_p \end{vmatrix} + (-1)^{n+2} b_1 (-1)^{n+1} a_1 = \dots =$$

$$= m_p - \sum_{i=1}^{n} a_i b_i$$

Determinant

$$\begin{vmatrix} 1+T_e & 0 & \dots & 0 & m^1 + c^1 T_e \\ -T_e & 1\,0 & & 0 & m^2 - c^1 T_e \\ \vdots & \vdots & & \vdots & \vdots \\ 0 & 0 & \dots 0 & 1 & m^n \\ m_u^1 & m_u^2 & \dots & m_u^n & m_p \end{vmatrix}$$

$$= (1+T_e) \begin{vmatrix} 1\,0\dots & 0 & m^2 - c^1 T_e \\ 0 & \vdots & m^3 \\ \vdots & \vdots & \vdots \\ \vdots & 0 & \vdots \\ 0\dots 0 & 1 & m^n \\ m_u^2 \dots & m_u^n & m_p \end{vmatrix}$$

$$+ (-1)^{n+2} (m^1 + c^1 T_e) \begin{vmatrix} -T_e & 1 & 0\dots & 0 \\ 0 & 0 & & \\ \vdots & \vdots & & \\ \vdots & \vdots & & 0 \\ 0 & 0 & \dots 0 & 1 \\ m_u^1 & m_u^2 & \dots & m_u^n \end{vmatrix}$$

$$= (1 + T_e)\left[m_p - \sum_{i=2}^{n} m^i m_u^i + m_u^2 c^1 T_e \right] - (m^1 + c^1 T_e) m_u^1$$

$$+ (-1)^{n+3}(m^1 + c^1 T_e) T_e \begin{vmatrix} 0 & 1.0\ldots & 0 \\ \vdots & 0 & \vdots \\ \vdots & \vdots & 0 \\ 0 & 0\ldots 0 & 1 \\ m_u^2 & \ldots\ \ldots & m_u^n \end{vmatrix}$$

$$= -(1 + T_e)\Omega + (1 + T_e)(m^1 m_u^1 + m_u^2 c^1 T_e)$$

$$-(m^1 + c^1 T_e) m_u^1 - (m^1 + c^1 T_e) T_e m_u^2$$

$$= -(1 + T_e)\Omega + T_e(c^1 - m^1)(m_u^2 - m_u^1)$$

$$= -(1 + T_e)\Omega + x^1 T_e (m_u^2 - m_u^1).$$

dP/dT $_a$

$$\begin{vmatrix} 1 + T_e & 0 & \ldots & 0 & -1 \\ -T_e & 1\ 0 & \ldots & 0 & 1 \\ . & . & & & \\ 0 & 0 & & & 0 \\ \vdots & \vdots & & 0 & \\ 0 & \ldots 0 & \ldots 0 & 1 & 0 \\ m_u^1 & \ldots & \ldots & m_u^n & 0 \end{vmatrix}$$

$$= (-1)^{n+3} \begin{vmatrix} -T_e & 1.0\ldots & 0 \\ 0 & 0 & \vdots \\ \vdots & 0 & \vdots \\ \vdots & \vdots & 0 \\ 0 & \ldots 0 \ldots 0 & 1 \\ m_u^1 & \ldots\ \ldots & m_u^n \end{vmatrix} + (-1)^{n+3} \begin{vmatrix} 1 + T_e & 0 & \ldots & 0 \\ 0 & 0 & 1\ 0 & 0 \\ \vdots & \vdots & & \\ \vdots & \vdots & & \\ 0 & \ldots 0 & & 1 \\ m_u^1 & m_u^2 & \ldots & m_u^n \end{vmatrix}$$

$$= (-1)^{n+4} T_e \begin{vmatrix} 0 & 1 \\ \vdots & \vdots \\ 0 & 1 \\ m_u^2 & \ldots\ m_u^n \end{vmatrix} + (-1)^{n+3}(-1)^{n+1} m_u^1$$

$$+ (-1)^{n+3}(1 + T_e) \begin{vmatrix} 0 & 1 & \\ \vdots & & \\ 0 & & 1 \\ m_u^2 & \ldots & m_u^n \end{vmatrix}$$

$$= (-1)^{2n+4} T_e m_u^2 + (-1)^{2n+4} m_u^1 + (-1)^{2n+3}(1+T_e) m_u^2$$
$$= m_u^1 - m_u^2$$

Hence,

$$\frac{dp}{dT_a} = \frac{m_u^2 - m_u^1}{(1+T_e)\Omega - x^1 T_e (m_u^2 - m_u^1)}$$

Country 1

$$\begin{vmatrix} -1 & 0 & \dots 0 & m^1 + c^1 T_e \\ 1 & 1 & & m^2 - cT_e \\ 0 & 0 & & m^3 \\ \vdots & \vdots & & \\ \vdots & \vdots & 1 & m^n \\ 0 & m_u^2 & m_u^n & m_p \end{vmatrix}$$

$$= (-1) \begin{vmatrix} 1 & & m^2 - c^1 T_e \\ & & m^2 \\ & & \vdots \\ & 1 & m^n \\ m_u^2 \dots & m_u^n & m_p \end{vmatrix} + (-1) \begin{vmatrix} 0 & \dots 0 & m^1 + c^1 T_e \\ \vdots & 1 & m^3 \\ \vdots & & \vdots \\ 0 & \dots 1 & m^n \\ m_u^2 & \dots m_u^n & m_p \end{vmatrix}$$

$$= -\left[m_p - \sum_{j=2}^{n} m^j m_u^j + m_u^2 c^1 T_e \right] + (-1)^{2n+2}(m^1 + c^1 T_e) m_u^2$$
$$= \Omega + m^1 (m_u^2 - m_u^1)$$

Hence,

$$\frac{du^1}{dT_a} = \frac{\Omega + m^1(m_u^2 - m_u^1)}{-(1+T_e)\Omega + x^1 T_e (m_u^2 - m_u^1)}$$
$$= \frac{1}{1+T_e}\left[-1 - (m^1 + C^1 T_e) \frac{dP}{dT_a} \right]$$

Country 2

$$\begin{vmatrix} 1+T_e & -1 & 0 \dots & 0 & m^1 + c^1 T_e \\ -T_e & 1. & 0 & & m^2 - cT_e \\ 0 & 0 & 1 & & m^3 \\ \vdots & & & & \vdots \\ 0 & 0 & & 1 & m^n \\ m_u^1 & 0 & m_u^3 \dots & m_u^4 & m_p \end{vmatrix}$$

$$= \begin{vmatrix} -T_e & 0 \ldots 0 & & m^2 - c^1 T_e \\ 0 & 1 & & m^3 \\ \vdots & & & \vdots \\ 0 & 0 & 1 & m^n \\ m_u^1 & m_u^3 & m_u^n & m_p \end{vmatrix} + \begin{vmatrix} 1 + T_e & 0 \ldots & 0 & m^1 + c^1 T_e \\ 0 & 1 & & m^3 \\ \vdots & & & \\ 0 & & 1 & m^n \\ m_u^1 & m_u^3 & m_u^n & m_p \end{vmatrix}$$

$$= -T_e\left[m_p - \sum_{j=3}^{n} m^j m_u^j\right] + (-1)^{2n+1}(m^2 - c^2 T_e) m_u^1$$

$$+ (1 + T_e)\left[m_p - \sum_{j=3}^{n} m^j m_u^j\right] + (-1)^{2n+1} m_u^1 (m^1 + c^1 T_e)$$

$$= -\Omega + m^2(m_u^2 - m_u^1)$$

Hence,
$$\frac{du^2}{dT_a} = \frac{-\Omega + m^2(m_u^2 - m_u^1)}{-(1 + T_e)\Omega + x^1 T_e (m_u^2 - m_u^1)}$$

$$= \frac{1}{1 + T_e}\left[1 - (m^2 - c^1 T_e)\frac{dP}{dT_a} - T_e(m^1 + m^2)\frac{dP}{dT_a}\right]$$

Country 3

$$\begin{vmatrix} 1 + T_e & 0 \ldots & -1 \ldots & 0 & 0 & m^1 + c^1 T_e \\ -T_e & 1 & 1 & 0 & & m^2 - cT_e^1 \\ 0 & 0 & 0 & 0 & & m^3 \\ & & & 1. & & \\ 0 & 0 & 0 & & 1 & m^n \\ m_u^1 & m_u^2 & 0 & m^4 \ldots & m_u^n & m_p \end{vmatrix}$$

$$= (-1)^{n+4} m^3 \begin{vmatrix} 1 + T_e & 0 & -1 & 0 \ldots & 0 \\ -T_e & 1 & 1 & 0 \ldots & 0 \\ 0 & 0 & 0 & 1 & \\ \vdots & \vdots & \vdots & & \\ 0 & 0 & 0 & & 1 \\ m_u^1 & m_u^2 & 0 & m_u^4 \ldots & m_u^n \end{vmatrix}$$

$$= (-1)^{n+5} m^3 \left\{ \begin{vmatrix} -T_e & 1 & 0 \ldots & 0 \\ 0 & 0 & 1 \ldots & 0 \\ & & & \\ 0 & 0 & & 1 \\ m_u^1 & m_u^2 & m_u^4 & m_u^n \end{vmatrix} + \begin{vmatrix} 1 + T_e & 0 & 0 \ldots & 0 \\ 0 & 0 & 1 & \\ & & & \\ 0 & 0 & & 1 \\ m_u^1 & m_u^2 & m_u^4 & m_u^n \end{vmatrix} \right\}.$$

$$= (-1)^{n+5} m^3 \left\{ (-T_e)(-1)^{n-1} m_u^2 + (-1)^n m_u^1 + (1+T_e)(-1)^{n-1} m_u^2 \right\}$$

$$= m^3 (m_u^2 - m_u^1)$$

Hence,

$$\frac{du^3}{dT_a} = -m^3 \frac{dP}{dT_a}$$

By symmetry,

$$\frac{du^j}{dT_a} = -m^j \frac{dP}{dT_a}, \quad j = 4, \ldots, n.$$

Remark

A somewhat easier way to derive the country results, given the price result derived first, is to differentiate the budget readers (2) – (4) directly and, in the case of country 2, sequentially.

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$$= m(\alpha_2 - \alpha_3)$$

Hence,

$$\frac{du}{dT_n} = -m\frac{dP}{dT}$$

By symmetry,

$$\frac{du_j}{dT} = m_j \frac{dP}{dT}, \quad j = 4, \dots, n$$

Remark

A somewhat [illegible] way to derive the country results, given the price result derived first, is to differentiate the budget [illegible] (2)–(4) directly and, in the case of [illegible] 2, sequentially.

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ON TRANSNATIONALISATION

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1.

On an initial virtually intuitive examination, the share of foreign trade in the GDP of various countries may provide a "measure" of the level of transnationalisation in the economic systems forming the world economy.

On this criterion transnationalisation gained a stronger hold over the long cycle following the end of the second world war. In addition the slow-down in growth from the early 1970s did not mean a loss of steam in world trade, unlike the 1930s when falling production was matched by declining external transfers. Rather the reverse, the rate of expansion in external transfers through the 1970s and 1980s ran above growth: transnationalisation intensified.

The share of exports in the GDP of the developed capitalist countries (OECD) rose from 12 per cent in 1965 to 20 per cent in 1988. If we take into account the increasing weight of non-exportable services in the GDP (more than 60 per cent) we have some measure of the decisive impact of external trade on the performance of numerous sectors of agricultural and manufacturing output. This is an altogether new phenomenon—although international competition as such is nothing new—and explains why the authorities lay stress on the obligation of "international competitiveness" and have entirely abandoned the old maxim of "national autonomy" prevelent in the 1930s.

It should however be noted that this intensified transnationalisation is primarily a sign of the interpenetration of the developed capitalist economies, and only secondarily of "North-south" transfers. World trade is expanding principally because of intensification of intra-European transfers encouraged by the EEC. It is now possible to talk of a "European economic region"—although I would hesitate to describe it as an integrated region—on much the same lines as the great pre-second world war European national economies (Germany, Britain and France). Secondly it is a sign of intensification of transfers between the three poles of the capitalist world economy: United States, Japan and the EEC.

This shift is the main reason for the expansion of external trade's share in the United States GDP (from 6 to 11 per cent between 1965 and 1988) and the rather more modest expansion in Japan (from 11 to 13 per cent over the same period). If the EEC is treated as a single "country"—disregarding intra-European transfers—it can be seen that the "external" trnasfers of each of the three giant poles represent about 12 per cent of their GDP and that intrapolar flows account for more than 60 per cent of the transfers (the share of intra-OECD transfers went from 66 per cent of their manufacturing exports in 1965 to 70 per cent in 1985, but remains as low as 60 per cent if intra-EEC transfers are excluded). This 12 percent of GDP might not seem so much after all; it really is substantial as it represents 31 per cent of agricultural and industrial output (with services making up 61 per cent of GDP).

The share of transfers between the developed poles and the peripheries is by no means insubstantial, despite the fashion of writing it off rather too hastily. The third world is a significant and expanding market for the developed poles. It must be admitted that the expansion of this market is unequal in the extreme. In 1988 world trade (exclusive of USSR, North Korea, East Germany, Czechoslovakia and Cuba) amounted to 2,627 billion dollars. OECD exports (2,024 billion) accounted for 77 per cent. The third world countries (603 billion) accounted for 23 per cent: China 48 billion, India 15 billion, other low-income countries 45 billion, other middle income countries 341 billion, and the wealthy under-populated oil producer countries 154 billion.

Or another breakdown gives: 154 billion for the oil producers, 174 billion in East Asia, 101 billion in Latin America, 85 billion for the Arab countries, Middle East, South and South-East Asia, 29 billion in sub-Saharan Africa. The share of exports of each of the poles—US, Japan and EEC—to the third world countries was of the order of 20 to 30 per cent, more like 30 per cent for US and Japan and 20 per cent for the EEC, disregarding intra-EEC transfers.

It is worth noting that the volume of external trade of the third world countries inceased more rapidly than the GDP of the constituent countries. China's exports went from 3 to 14 per cent of GDP between 1965 and 1988, India's from 4 to 7 per cent over the same period, those of the middle income countries from 18 to 26 per cent. For the low income countries the share fell from 25 to 19 per cent over the period. We are back to the relative stagnation of the external trade (and output) of most third world countries, the components of the "fourth world" (including most of the sub-Saharan countries). These statistics do not carry quite the same weight as in other countries, since GDP estimates are often highly unreliable (and not particularly significant). The apparent shifts in the ratio of exports to GDP—and the subsequent fall from 25 to 19 per cent—must be treated with caution. What is clear is that the performances are mediocre and the absolute quantities virtually negligible.

If the so—called fourth world is only an inconsequential market for the centres, this is not the case for the middle income countries who represent a significant market expanding at a faster rate than transfers between the developed poles. Transnationalisation has also intensified for the countries of the periphery though this obviously applies only to a narrow segment.

The peripheries do not play a merely passive role in transnationalisation—by opening their markets to expansion from the North. Industrialisation of the South gives it an active role, by making it a by no means negligible segment of the world market in manufactured goods.

The North certainly retains control of the world market in agricultural and manufacturing output, because it has cereals surpluses (in the face of food shortages in the South) and the initiative in product innovation. Admittedly the third world exports of manufactured goods of the three poles—of the order of 200 to 210 billion dollars in 1985—represents less than 20 per cent of world transfers of manufactures, whose total volume was more than 1,100 billion at the time. The proportion remains modest—but far from negligible—when intra-EEC transfers (of the order then of 22 per cent) are excluded. United States exports to the third world accounted for 35 per cent of their total exports of manufactured goods (160 billion dollars in 1985); Japan's similar exports were 36 per cent (of overall exports of 170 billion dollars in the same year); as for EEC exports to the third world—of the order of 100 billion dollars in 1985—they accounted for less than 20 per cent of the overall exports from the member countries, with the share rising to 25 per cent if intra-EEC transfers are excluded.

At the same time the world market saw the appearance of manufacturing exports from some of the middle income third world countries.

Active transnationalisation also intensified in the countries of the periphery, albeit obviously still more concentrated in a few countries. In the first instance came the four dragons of East Asia (with more than 70 billion dollars of manufacturing exports in 1985, 28 billion of which came from South Korea). The Latin American giants followed (primarily Brazil and Mexico: about 16 billion). Then came South-East Asia (Thailand, Malaysia, Indonesia, Philippines: 12 billion). Eastern Europe (mainly Yugoslavia, Poland and Hungary) showed potential for expansion (22 billion in 1985 for the three countries named). China should also be included in the list (13.4 billion of manufacturing exports in 1985) and India (with 5.9 billions in exports of the kind) where export capacity was expanding. In comparison The Arab world (3.6 billions of manufacturing exports) and the fourth world (under 2 billion) were not only negligible but also stagnant.

2.

If we look in conjunction at intra-EEC transfers, transfers between the poles (the United States, Japan and EEC), and transfers between the poles and the semi-industrialised regions of the third world, we can see how regional crystallisation fits into the framework of increasing transnationalisation. The crystallisation occurs around each of the three poles indicated, but their respective peripheries enjoy a very different potential.

The great American region, dominated by the United States and its external province of Canada, is the natural partner of Latin America and the Caribbean. Mexico is already on the road to complete integration in the "great North-American market". Central and South America are being encouraged to follow this example, with the proposal of a free trade area stretching from Alaska to Tierra del Fuego.

The great eastern and south-eastern Asian region, dominated by Japan, is incorporating semi-industrialised South-East Asia (Thailand, Malaysia, Indonesia, Philippines). The boundaries of this region are still indeterminate. It is by no means clear that Korea can be regarded as "integrated" in the region any more than it makes sense to include China. Even India, despite all its weaknesses, retains its autonomy with regard to the Japanese pole. But the "Japanese" region could stretch westwards (Burma, Sri Lanka and even as far as Pakistan and the Gulf).

The region crystallized around the EEC has its own shape: it is formalised in the EEC-ACP association, reinforced in part by the narrow restraints of the Franc zone. But the African peripheries affected are essentially the poorest countries whose potential within the existing system is unpromising. This is no doubt why transfers between the EEC and the South are relatively less substantial than transfers between the United States and the South, and between Japan and the South. Europe has concentrated on its own internal integration due to receive a new fillip in 1992 with the launch of the single market. Europe's opening on its eastern front may also provide new prospects for integrated European expansion and further slow down any growth in transfers between Europe and the South.

It is therefore premature to talk of "regionalisation" within transnationalisation. The peripheries are still largely exposed to the competition of the poles vying for their market (for trade and for finance). Competitiveness of the poles is unequal for the various kinds of output. Japan and the United States have the edge in new technologies, espceially in information technology. The United States, Canada and France have the advantage in cereal production. Germany is predominant in traditional mechanical engineering (cars, machine tools) and chemistry. France is in the forefront of some aspects of armaments, railways, aeronautics. Transfers between the poles differ from their transfers with the peripheries. Comparative advantage in the new technologies is crucial in intra-polar transfer, much less so in competition for third world markets.

But the chief obstacle to discussion of regionalisation as an accomplished fact is the enormous uncertainty hanging over the policies of the Soviet Union, China, India and the third world, to say nothing of uncertainty about the future of Europe itself and the crucial decisions to be made by the new Germany.

In these matters we can only conjecture. It seems to me that unified Germany's scope for expansion in Eastern Europe will have a profound effect on Germany's own integration within the EEC. It seems to me that the Soviet Union, China and even India will cling to the possibility of remaining independent of a specific pole, and by that token will retain significant room for manoeuvre. In comparison it does not seem to me probable within the foreseeable future that the great regions of the third world will organise themselves and around themselves, whether we are looking at Latin America, the Arab world, Africa or South-East Asia. However this is the kind of regionalisation as the basis for a polycentric world that is needed for an alternative prospect for development than that of unilateral adjustment—in extended order—to the demands of world-wide capitalist expansion[1].

3.

External trade is one of several equally important indices of the intensity of transnationalisation: technology transfers (and dependencies), financial flows (and foreign debt), not to mention supposedly exogenous factors in the economy (culture and communications, geo-strategy and armaments, ecology). All these factors bear witness to the spread of world-wide influence, through interpenetration of economies and the central societies and through integration of the peripheries in the global system.

It is fashionable nowadays to draw two dogmatic conclusions from the facts. The first argues that transnationalisation is ineluctable and must be accepted as such. The only possibility is *adjustment*. The second argues that active adjustment to the demand is possible on the part of the so called developing countries, and that the "success" of Korea and a few others is the evidence. Everything would depend on factors internal to the various countries of the third world.

The World Bank reports are models of the kind. Reading them—a task as tedious as reading "Pravda" at the end of the 1960s—had the advantage that it was possible to predict what the Bank would have to say on any topic, old or new. The Bank would never go beyond the two conclusions described above—the a priori dogmas, Ideology was triumphant. The real issues were always fudged in advance. They were replaced by a mountain of "data" (statistical appendixes, the only useful part of the reports, even if the statistics were silent on many key points and in some cases unreliable to say the least). The data was not particularly meaningful but was supposed to "tell a story".

Econometric models, never more than pretentious substitutes for the rule of three, were manipulated to say what the authors wanted in order to give a "scientific" cover to purely ideological positions. It was pure and simple tautology.

This note on transnationalisation addresses precisely those issues fudged in the fashionable treatments. They can be considered under two headings—modalities and experiences.

The first one looks at the *modalities* of transnationalisation. In simple terms these are the alternatives: can the demands of transnationalisation be reconciled with the maintenance or building of national autonomy—and if so which demands? Or there is such a total contradication in terms that we must watch national reality being sucked under by world-wide influence? This means the dissolution of structured national integration (where it exists as a historically constituted legacy) or abandonment of such integration if it is not part of the inheritance. This would result in what would henceforth be a world-wide economy (or world-wide system of production, in Michel Beaud's terms) and no longer an international system (since the latter would require the articulation of national systems of production). The question then is whether it is desirable or possible to reconcile the demands of transnationalisation and the aim of "national" construction? I would suggest there are two answers with differing or even conflicting social implications.

The second offers a critical appraisal of *experiences* of "adjustment" to transnationalisation, whether the so-called "socialist" experiences of seeming rejection of transnationalisation or the experiences of the contemporary third world. Here the fashionable treatment makes a bald distinction between "successes" (measured by growth in GDP and a favourable balance of trade) and "failures" (on the same criteria). South Korea stands at one extreme, the African fourth world at the other. This treatment is no more than banal repetition of what the statistics in the appendixes of the World Bank show at first glance. It never promotes an examination of the adjustment strategy being implemented (or suffered) in comparison with what other—untried—strategies might have achieved. It is essentiallly an uncritical treatment.

4.

The fundamental issue—namely the contradiction between transnationalisation and national autonomy—gives rise to positions that diverge at the outset. The genuine potential in the historical projection is vastly different from that imagined by proponents of the conventional treatment (whose notable feature is this very lack of imagination). Apparently all authorities in the OECD countries—and behind them the public "opinion" largely shaped by those authorities—go along with the principle of evolution from an international economy to a world economy. There is a total consensus between the right and left—in the electoral meaning of these terms in the context of the modern West.

Behind this unanimous facade stand "shades of meaning" quintessential to the political changes in the foreseeable future. The United States and Japan are not merely "geographical areas" of the world economy under construction. They are and will remain "national" economies, with the state ensuring continuance of national structures while enjoying the lion's share of the construction of the world economy. The fanatics of "liberalism" will tell us it is a rearguard action. It may well boil down to a rearguard action in the perspective of the next couple of centuries, but it is a vanguard action in the shaping of the next couple of decades. These national options remain decisive at such levels as: spending on civil and military R&D and appropriate training systems; de facto protectionism—of agriculture (through subsidies under a challenge with an indeterminate outcome...), mineral and oil resources (the policy of so-called strategic stockpiling) and even of straightforward manufacturing industry; financial management etc. On top of this the United States holds a trump card that in the absence of an alternative has immunity for the short or medium term, namely the dollar fulfilling the role of a world currency.

Europe's situation is by no means comparable and it cannot be argued that the building of the EEC will make it such. Europe is the creature of its past, of the conjunction of historically constituted national economies. The EEC is not a supra-national state and the common policies, even under the single market of 1992, do not meet the demands of such a construct. There is no common policy—except for subsidies to agriculture, under threat as in the United States, with the outcome still indeterminate ... The elements of a monetary policy (the "snake") are weakened by a diversity of anti-inflationary and short-term policies ... not to mention the absence of even a plan for a common social policy. For the time being and the foreseeable future the common market is what its name suggests and nothing more: a market. Integration in market terms only provokes more contradictions than it resolves. It runs the risk of weakening Europe as a whole, by strengthening some countries and debilitating others in a hybrid construct whereby the national structures of the "strong" (principally Germany) are maintained and those of the "weak" are eroded, without the alternative of an integrated Euopean whole.

This less than optimistic prospect is made more feasible by the persistence of varying and contradictory national strategies within the EEC. Britain accepts world-wide expansion—and erosion of national power—but not to the benefits of a European construct. On the one hand it is open to a world without borders as is shown by its acceptance of Japanese information technology, as an alternative to a virtually non-existent European information technology policy. Britain is profiting from its legacy as a powerful financial centre. On the other hand it has always bowed to the eventuality of being absorbed by the United States, with whom its shared language and culture is of renewed significance. On this count it must be admittted that the Europlean construct will remain handicapped by linguistic diversity in comparison with the United States and Japan. It is hard to imagine a common R&D and common training systems: in what language?

At the other extreme Germany is in an entirely new situation. West Germany was already the economic "gaint" of the EEC (with manufacturing exports on the scale of the United States and Japan and more than double those of Britain, France and Italy). But it was regarded as something of a "political pygmy". The EEC's balance depended on these compensating factors: Britain and France in the political driving seat, and the German economy as the engine. In the new circumstances a unified Germany could almost go it alone. This means that Germany without raising a formal objection to the EEC might desire to push "European integration" no further than what a "common market" structure entailed. Germany as the strong partner has the possibility of accepting the market rules while retaining its strong national structure, at the same time as the national structures of its partners are eroded. Germany may even reinforce its national structure by expanding into an eastern Europe reduced to a subordinate role.

Between the British and German options that seems possible (and in my view probable) there is no scople for alternative policies. France, Italy and the other members may dream of activating a European political construct to offset their economic weaknesses through political commitment. Britain is against it and Germany does not need it. Can the slogans be anything more than pious hopes?

The future of the European plan depends finally on what Germany decides. A Germany going it alone could aspire to become the third pole of a system (United States, Japan and Germany) at the economic *and* political level. Of course it would have to overcome some obstacles. German technology does not match up to that of the United States and Japan, and its export performance is based on the traditional industries of post-second world war reconstruction rather than the new technology. But Germany has not yet resumed its proper political role. Britain and France are among the five permanent members of the United Nations Security Council with the right of veto—although this privilege is probably on its way out at some point (Gorbachev has already made a proposal of this kind in suggesting a similar status for Germany at the UN).

So why should Germany not exercise the "European option", as its Chancellor proclaims (but what are statements of this sort worth!)? Why should it? It would maintain the political privileges of its partners, with nothing in return that was not there for the taking?

Pending these decisions, it has to be admitted that Europe remains a "collective political pygmy" to describe it all in the way that hitherto Germany has been categorised. Europe under the American nuclear umbrella (worthless since the coming of what Alain Joxe has seen as "the end of the cycle of deterrance"), fragmented between the subtleties of the divergent foreign policies of the member states, has been able to make only a rhetorical stand against the United States. Europe's very weakness bars it from "settlement" of major North-South issues (over Palestine for example) and Europe has de facto to fall into line with the decisions taken in Washington (as the Gulf crisis shows).

For Europe to become a third pole, with the consequent opportunity of being the principal pole on a world scale, it must pursue De Gaulle's old dream of a Europe "from the Atlantic to the Urals" (or Vladivostok), by incorporating the Soviet Union (or Russia). Gorbachev is nowadays the only person to pursue this vision under the label of the "Common European Home".^{2} It is a flexible plan of the "confederal" kind allowing the partners, the British, French, German, Russians and others, room to respond to their varying objective circumstances. This recipe for reconciling transnationalisation *and* national autonomy is very close to the thesis I am propounding here. It is also I believe close to the genuine desires of observers of a cosmopolitan turn of mind who are not ready to go as far as extirpating their national roots in history.

If the transnational option is clear for the central powers and only the modalities we have indicated are the subject of debate, it is a very different matter for the third world and the countries of the East. For the latter the choices they face may have disastrous consequence, but this is not so for the West. Whatever path is chosen in the West will not bring a dramatic social impact. A particular choice—such as a European common market without social and political harmonisation—could "marginalise" the poor periphery of Europe: widespread unemployment in the Spanish Asturias, decline in Greece for example. But Europe as a political entity can withstand these set-backs, turn the Mediterranean shores into playgrounds for the North Europeans, and absorb the new immigrant workers leaving the area.

It is not the same for the South and for the East. Here transnationalisation as conceived by its current backers (with no concessions to national autonomy) inevitably entails lasting poverty for the majority, aggravated by immense frustration. Unification of the world through the market carries an inevitable price-tag of violent explosions where the storm zone is the third world (with all due deference to those who do not recognise its unity) and in particular the semi-peripheral areas (the NICs etc.) The objective conditions of the countries of the East are very similar to those of the third world.

There is a world of difference between "unmitigated transnationalisation" and national autonomy (what I have called delinking in the modern context). There is no chance of a consensus on the matter as there is in the West. The social interests are at loggerheads, whereas in the West the conflict is muted. There are two warring camps. The ruling classes accept transnationalisation, in what I call compradorisation as it entails passive adjustment—and it does not matter whether it succeeds or fails according to World Bank criteria. They accept it simply because their earnings and authority benefit from the world-wide expansion. But the ordinary people are the victims of this world-wide expansion and will resist until they can secure the objectively essential alternative of national and popular rule.

Hence the third world is the storm zone once more. This is not the effect of an "essential historical cycle" with the third world obliged to replicate the steps trodden by the West and repeat the experience of ethnic, national and authority clashes, etc . . . The fashinoable neo-Weberian theses on these lines ignore the essential: the storms are the inevitable outcome of the polarising impact of world-wide capitalist expansion. Just as a storm will always have unpredictable effects, it is also difficult to make a prognosis beyond the immediate future. The distinctions I draw in what follows are based on the recent past and will be subject to the buffeting of the storms of the future.

China seems so far to be the only *clear* exception to the comprador option. It might therefore be able in the future to play the subtle role of a more pronounced integration in the world economy without having to forego its own national self reliant construct. Everything will depend on internal political changes. In this instance, since there has been delinking in my sense of the word, the internal factor has once more become crucial.

Some other examples of alternatives to compradorisation must be distinguished in subtly different ways. Cuba and Vietnam are "resistant" but in isolation, partly of their choosing and partly imposed by an imperialism that has not given up hope of breaking the national will of "small countries". India holds a very special place in the "capitalist" world, owing perhaps to India's size (a significant factor in China's case too). India's future is uncertain as the Nehru-Indira Gandhi style of national ideology is ground away by the rising comprador aspirations of the Indian bourgeoisie and the Indian edifice is challenged by local nationalisms. South Korea and Taiwan are even more remarkable exceptions, as they are on principle "anti-socialist". Their success is not the achïevement of rapid growth without serious damage to their balance of payments—something others have managed—but the building of a national structure around a strong state where income distribution remains equitable and controlled within reasonable bounds—something the others have not managed. Their success stems from doing the very opposite of what the prevailing liberal dogma urges! How? The explanation lies in specific historical (arguably cultural) and political factors (such as competition from North Korea and China).

There is really no other exception in the capitalist third world; in the "wealthy" countries (the oil producers for example); in the poor; in those congratulated by the World Bank on their "success" (in terms of growth and trade balances, the only criteria liberalism takes into account); in the unfortunate victims that have succumbed to treatment (the fourth world). There is no encouragement here for talk of success in terms of a strengthened national construct. Some first steps were taken in this direction in countries of very different background, some of average "development", others with none. All are sliding back. Even in the "semi-industrialised" countries pin-pointed by the World Bank (Brazil, Mexico, Turkey, Thailand, etc.) or in such countries as Cote d'Invoire and Kenya, no advance has been made in national construction. On the contrary the widening disparity in income distribution is a sign of failure. It reduces the chances of the social integration without which national construction is meaningless.

Each case must be treated individually of course. Here or there some ingredients of national policy can be discerned; in some NICs there is technological or financial control; in some countries with a nationalist background the state is playing a part in industrialisation or land reform. But these ingredients have not achieved the critical mass essential to counteract the comprador ambitions of the privileged classes. Accordingly the progress is fragile and threatened with the dismantling "advised" by the World Bank.

Are Eastern Europe and the USSR incurably doomed to a "third world" transformation and hence to be compradorised? Will they surrender to the demands of unmitigated transnationalisation, which would consign them to a third world fate? Or, as liberal ideology argues, will capitalism rescue them from the impasse of "socialism" and grant them rapid development on the lines of western European countries?

The purpose of this note is not to examine the systems that have suddenly fallen in these countries: their achievements and shortcomings; their difficulties and contradictions; the reason for their failure to reform; or even the nature of the open or concealed social and political conflicts under way. The following comments do however stem from an analysis I have made of these issues.[3]

Things being what they are, the countries of Eastern Europe will have difficulty avoiding the calamity for their working classes of integration in the capitalist system as it is. The integrated national structures established over the past forty years are already being dismantled to the benefit of the expansion of foreign capital (German first of all, but also European, Japanese, American). The new local bourgeoisie will find a role, but it will pay for its economic benefits by comprador surrender. It may in some instances find social support in some class or new intermediate stratum—rich peasants or petty entrepreneurs—as is the case in the third world. The ordinary people will pay for these "adjustments" by a drastic fall in their standard of living, widespread unemployment, cuts in social services etc . . . , and this not for a "brief transitional period", as their new leaders would have them believe, but once and for all. How will these classes react to the inevitable changes? It is too early to tell. But potentially troublesome reactions must be expected, fuelling secondary nationalisms (not challenging western domination), the basis for "populist" dictatorships such as these countries experienced in the 1920s, 1930s and 1940s.

The USSR is a more complex example. The character of the social conflicts under way and perception of what is at stake, the country's role as a military super-power, the acuteness of the national questions, operate in such a way as to outstrip the best informed studies. We are left with the almost intuitive thought that the USSR, if it finds a renewal—or the Russian heartland, if the Union breaks up—may achieve a subtle combination of democratic political reform, better economic management, greater integration in the world economy, and at the same time continuity—and subsequent reinforcement—of its national structure. The social character of this positive compromise between the demands of transnationalisation and of the creation of internal autonomy will be close to what I have described as "a national and popular social front"—produced by the 1917 revolution but lost in the later confusion in the ideology of so-called "socialist construction". This optimistic scenario does not stop there; such a system would inevitably evolve towards a greater developed capitalist crystallisation (a new pole) or towards the pursuit of an evolution of progressive social content.

5.

Performances in the world economy cannot be judged exclusively by the touchstone of the criteria of growth and trade balance. Income distribution acceptable to the nation as a whole is an absolute essential, without which there is no nation and no social integration. The nation cannot exist without autonomy in regard to external forces (of technology, finance, food supply, industry, military hardware, culture). Without such autonomy the nation is not longer an active agent in the shaping of world society. The frustrations of passive surrender to the hazards of an evolution beyond one's control have negative rather than positive effects. Performances in the world economy must be assessed in this light: has the growth in question exacerbated contradictions, sharpened disparities, and deepened dependence, or has it rather reduced them?

The data supplied by conventional economics provide no answer to these questions, as they are fudged at the outset. Tables abstracted from the statistical appendixes of the latest World Bank reports provide data of very limited usefulness. The tables can be quickly scanned. As for the gloss the World Bank chooses to put on them, it is vacuous; irrelevant (just a priori legtimating of its own dogmas), and an inapporopriate use of the "data". The Bank, undoubtedly with a concern for "moral" purpose, inveighs from time to time on other issues such as "poverty". The very term is significant as it belongs not so much to social science as to the decorous language of some plutocrat or statesman at a charity gala. The "poverty" in question is never linked to the mechanisms of the prescribed economic development!

I shall offer the following comments on performances of world-wide expansion.

First: The capitalist world economy is well and truly in crisis, and has been so since the end of the 1960s. The long cycle of growth sustained after the second world war is over and done with. Since 1970s the average rates of growth in GDP have fallen to two thirds of their level in the preceding phase, of agricultural and industrial output to a half. Traditional economics persists in analysing the year-on-year changes in conjunctural terms ("recession", "revival", etc..), whereas it is a case of a long cycle of structural transformation against a "crisis" background (Kondratieff's B cycle), where increasing transnationalisation is one of the main features. Furthermore the emphasis placed on the collapse of the so-called socialist systems and the financial aspect of the "world crisis" (indebtedness, fluctuating exchange rates, inflation etc . . .) has obscured the real basis of the structural crisis against which conjunctural events are unfolding.

Second: the collapse of the economic (and political) systems of Eastern Europe, the uncertain future of the USSR and China are the second main feature of the structural transformation under way. I refer here to what I have said elsewhere on the subject.[4]

Third: In view of the exceptionally large populations concerned, evolution and progress in China and India are an essential ingredient to the future of the world system. In this context a comparison from any angle is overwhelmingly in China's favour.

The traditional criteria of economics are a first element in the comparison. Over the long period 1950–90, China shows a rate of growth in GDP double that of India and per capita income triple that of India. Exports (especially of industrial goods) are double those of India in relative terms. China's investment rate one and a half times India's. China's debt service burden is three times less severe than India's.

In addition to such criteria China has performed incomparably better in the domains described above. There is no need to cite "statistics" to show that income distribution is vastly different from one country to the other. Nowhere in China reveals the appalling wretchedness to be found throughout India. Even if administrative costs are comparable (and even lower in China since the mid-1980s) their efficiency and the access to social services for the various strata of the people are better (or less poor) in China.

It is more difficult to make a judgement as to dependence on external forces. The leap in China's exports during the 1980s can be noted, as the result of a freely chosen policy. Certainly the almost total closure of the country to foreign transfers was imposed by imperialism in the 1950s and 1960s and to some extent used positively by China to encourage self reliance and to embark on gigantic progressive social changes remote from the hazards of external pressure. However Soviet aid in the 1950s was a by no means negligible factor in the first instalment of industrial, technology and military capability. Later the leap in imports (that had to be matched by exports) was a necessary part of the "four modernisations" (Zhou Enlai). Was the opening controlled? Hard to say, as its damaging effects were often felt through the subtle channels of the consumption patterns of the privileged. Nevertheless the character of power in China, which is not exercised directly and exclusively through the bourgeois classes as in India, has so far limited the destructive impact of the international environment.

That said the analysis must be taken further with emphasis on the character of the changes after the death of Mao Zedong and the problems they raise for the future. I should say in this regard, and as further contradiction to the statements of the fashionable critics of Maoism, that economic growth in the successive Maoist periods was strong and better balanced in the long term thanks to constant effort at collective investment in irrigation and reafforestation etc. and better balanced over the various regions of China. It is understood that acceleration in agricultural growth allowed under Deng's new policy produced apparently brilliant results during the first half of the 1980s, but with no future, since it was to the detriment of long term growth. Similarly acceleration of industrialsation was focussed on coastal regions. Conversely the Maoist strategy could not be sustained indefinitely and had reached a plateau by the end of the 1970s.[5] But Deng's latter choices provoked contradictions of all kinds whose resolution is subject to the open and concealed conflicts under way. One of these contradictions is the premature acceleration of urbanisation (although the figures of the World Bank are vitiated here by a change in definition).

Fourth: The performances of the capitalist third world vary from one set of countries to another on the conventional criteria of growth and trade balance.

From this stand-point the performances as a whole are mediocre or calamitous. The rates of growth are low everywhere except India and East Asia. Their collapse is disastrous for the countries of the fourth world: sub-Saharan Africa records enormous negative rates as an average over several years as regards per capita income (a negative rate of 2 per cent!). The same is true for the third world countries as a whole, even for the so-called middle income countries (the 1980s were marked by a fall in per capita income in Latin America). The fall is equally catastrophic for the heavily indebted countries, as the adjustment imposed on them was achieved through the reduction (and often destruction) of productive capicity. Even the group of countries with industrial exports saw a slow-down in growth (although per capita income remained positive). There are only two exceptions: India and East Asia (Korea, Taiwan, Hong Kong and Singapore).

The other conventional criteria tell us little more, but complement the picture. The investment effort suffered from the fall in income. The satistics here are unreliable. However they indicate probable stagnation at a generally low level, more severe in the poor countries and those most harshly affected by the adjustments policy (the indebted). Conversely an increased investment rate should be noted in India and in the countries with industrial exports, particularly marked in East Asia. It must be understood that the investments required by modern industry (especially export industries) are very costly. In these circumstances stagnation in the rates often means de facto disinvestment, with negative net investment and amortisation accounting for more than gross investment. A marginally improved rate suggests only mediocre results: growth in industrial production and exports to be sure but modest in production terms and costly in export effort. The World Bank has nothing to say on these points since they run counter to its dogma.

The results in terms of export growth must be judged against their investment cost (in relation usually to stagnant overall income). Exports are up almost everywhere in terms of proportion of the GDP, even if they are stagnant for the poorest countries. They are up even more in India, in the middle income countries in general and particularly for the middle income countries in general and particularly for the industrial exporters (primarily East Asia). But at what cost for the society? The cost of foreign indebtedness, of which it is one of the causes (but there are others independent of third world policies, such as the interest rate hike decided by the United States adminstration). Literature on debt is so plentiful that it is not worth adding anything here (see World Bank tables).

There are additional damaging effects of the general crisis and the third world's burden in this crisis. Statistics on the share of administrative costs in the GDP reveal only a fragment of the state's role and the social services it finances. It has to be observed that if there is a casual tendency to say that the state is "top-heavy" in the third world, the relative burden of that state on the national economy is much lower throughout the third world than in the OECD countries! Undoubtedly the full burden is more difficult to carry in the poor countries owing to the greater proportion of non-commodity production. But the real issue goes wider than this quantity and costs framework and should focus on the quality of services, their efficiency and their social effect. Such intervention considered inefficient (or prejudicial) by the "foreign experts" is perfectly understandable and effective on the criteria of the social and political functions it fulfils.

On the conventional criteria of liberal economics the performances throughout the third world are mediocre or disastrous. Increased transnationalisation is not a healthy response to the challenge of the crisis, but an ingredient of that crisis. On the conventional view there are really only two exceptions to the general failure of development: India and East Asia.

India's performances, even if they fall far below China's, are better than those of the capitalist third world as a whole. India has not "suffered" from the crisis, and has maintained its rate of growth. This is certainly an effect of its size and hence relatively more pronounced de facto autonomy from external forces and greater self-reliance, in other words, an effect of precisely the opposite of what liberal dogma suggests! However India remains fragile in the long term for reasons that will be considered later.

The performances of East Asia are of another character. At the outset I leave out Hong Kong and Singapore for obvious reasons. I merely repeat what I said earlier: Korea and Taiwan have built their development on a strong state, with pronounced national and social integration. They are the only real successes of capitalism in the third world!

We must look further than the conventional criteria and analyse prospects on a longer time scale than possible growth initiates or forecloses in the peripheries of the capitalist world system within the context of what I call "really existing capitalism" (in contrast with the ideological model of liberal economics). For this purpose attention must be paid to what the conventional analysis dodges: income distribution, employment, training, social services, the position of the state, development contradictions (especially between town and countryside) etc...

On this basis the performances of the third world score an overall minus. First disaparity in income distribution is acute everywhere, even in India, for the poor and for the "rich", with a propensity to worsen still more in the countries of most pronounced growth. The only exception is that duo of Korea and Taiwan. Admittedly the degree of disparity is variable, with latin America enjoying the dubious distinction of providing the most deplorable social model of all. The "liberals" soothe their conscience with the recollection that it was the same in Europe at the birth of capitalism. They omit to say that the later improvement in distribution in the model was won thanks to workers'struggles (struggles they condemn in the third world!) and that the struggles occurred in a context of imperialist expansion that facilitated their successful outcome. The inexorable law of accumulation, as formulated by Marx, operates more on the world scale of "really existing capitalism" than of its centres taken in isolation.[6] They seem to forget that the increasing disparity observed here at the periphery of the system is not a vestige of a pre-capitalist past (the fashionable neo-Weberian thesis), but the inevitable product of the current expansion of capital. They seem to forget that accumulation on a world scale produces social structures at the periphey non-conducive to the development of social struggles on the lines of those that occurred in the West.

Other indicators reinforce the negative impact of the law of increasing disparity associated with capitalist expansion in the periphery: in the first instance unemployment, whose real extent is in no way reflected in official statistics. Unemployment is on an enormous scale in the capital cities of the third world (30 to 50 per cent of the potentially active population would be a reasonable bracket). Feverish urbanisation runs well ahead of the level of development. The urban population accounts for at least half the overall population in Latin America, and in the Arab world, and approaches half in more and more of the other countries. The drift to the towns is an indication of social contradictions beyond the control of capitalist expansion, and aggravated, particularly in Africa, by the destruction of the rural societies brought about by urbanisation.

In such circumstances progress for the third world entails going against the natural law of accumulation, not adjusting to it. The conclusion is valid when development comes within the framework of overtly capitalist social relations or when it is part of relations evolving under the authority of popular social fronts. This explains the success of Korea and Taiwan who went precisely against the prevailing trends and the liberal recommendations.

Accordingly "dependence", supposedly out of fashion, is a glaring fact, and its accentuation confirmed by all the studies of the "technology gap", the world-wide influence of models diffused by the mass media, foreign debt etc . . . This dependence is neither cause nor effect of disparity in income distribution. Along with the disparity to which it is closely linked, dependence is inherent in the polarising world-wide expansion of capitalism. It is one side of a coin whose other is compradorisation of the privileged classes who benefit from the expansion, and are the conveyor belt of dependence rather than its "victims".

Solving these problems requires control over foreign relations and the state's active intervention in production guide-lines, social distribution, R&D, employment and training etc.... When the World Bank and western agencies argue that the "poverty trap" can be resolved without a challenge to liberal dogma, but by juggling the various recipes that have been in and out of fashion ("basic needs" etc...), they are bound to fail. The Bank itself observes this each time after the event, albeit without making any self-critcism of the failure it has encouraged, but clinging perpetually to its charitable language.... At other more directly political levels—as with the issue of democracy—the contradiction is equally glaring between the objective demands of polarising world-wide accumulation and those of democratic progress.[7]

On all these essential points the third world (peripheral in the capitalist system) is at one despite its varied circumstances. We repeat that it does not add much to stress the variety. The third world (as an integrated periphery) and the fourth world (as a destroyed periphery) have always coexisted in the world-wide expansion of capitalism.

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TABLE I

	Per capita GNP	GIP growth			Adm. cons/GIP			Gross inv/GIP			Export/GIP			Urban Pop.	
	1985 $	65/80	80/85	80/88	1965	1985	1988	1965	1985	1988	1965	1985	1988	1985	1988
China	310	6.4	9.8	10.3	15	14	7	25	38	38	3	11	14	22	50
India	270	3.8	5.2	5.2	10	12	12	18	25	24	4	6	7	25	27
Poor countries	200	3.2	2.8	2.0	11	12	12	15	15	18	25	14	19	20	25
Intermediary income countries	1,290	6.5	1.7	2.6	12	12	12	21	21	23	18	26	—	48	41
of which:															
Ind. Exporters	520	6.7	5.5	—	13	12	—	23	28	—	—	21	—	29	—
Heavily indebted	1,410	6.4	0.1	1.5	10	10	—	22	18	—	—	17	—	57	—
Brazil	1,640	8.8	1.3	2.9	11	9	12	25	16	23	8	14	10	73	75
East Asia	540	7.2	—	8.5	—	—	10	—	—	31	—	—	23	—	46
Subsaharan	400	5.3	–0.7	0.8	11	12	15	16	13	15	24	21	23	25	28
Oil-rich countries	9,800	7.5	–2.2	–1.3	15	31	22	19	29	25	61	47	63	73	83
O.E.C.D.	11,810	3.7	2.3	2.9	15	17	17	23	21	22	12	18	20	75	77

Poor countries: the majority in Africa, Caribbean, some Asian countries

Intermediary income countries: the majority of Arab, Latin America, East and South East Asia, some African countries

Industrial exporters: mixed group, East and South East Asia, Latin America

Heavily indebted: mixed group, dominated by Latin America and oil countries

East Asia: Korea, Taiwan, Hong Kong and Singapore

Subsaharan Africa: South Africa excluded

Oil-rich countries: Saudi Arabia, Kuwait, UAE, Libya

(Tables from the World Bank Reports, 1987 and 1990)

TABLE II
INTERNATIONAL TRADE, 1988 BILLIONS DOLLARS (WORLD BANK REPORT 1990, TABLE 14)

Exports	Billions Dollars
O.E.C.D.	2.024
China	48
India	15
Other poor countries	45
Intermediary income countries	341
Rich oil countries	154
Total	2.627
Or:	
Subsaharan Africa	29
East Asia	174
South Asia	22
Latin America	101
Europe, Middle East, North Africa	103
Japan	264
U.S.A	315
(Heavily indebted)	(128)

TABLE III
EXPORTS OF MANUFACTURED GOODS 1985, BILLIONS DOLLARS (WORLD BANK REPORT 1987, TABLE 14)

	Billions dollars
O.E.C.D.	949,0
China	13,4
India	5,9
Other poor countries	3,4
Intermediary income countries	134,4

Or:

	Total Exports of manufactured goods	% to the Third World
U.S.A.	160 Billions $	35
Japan	170 ,,	36
Germany	160 ,,	18
France	72 ,,	19
Great Britain	70 ,,	17
Italy	68 ,,	14

	Billions dollars
Third World countries exporting manufactured goods:	
Korea, Hong Kong, Singapore	68,5
Indonesia, Philippines, Thailand, Malaysia	11,9
Brazil, Mexico Argentina	17,4
Yugoslavia, Poland, Hungary	21,7
South Africa	4,1
Turkey	3,9
Arab countries	3,6
China	13,4
India	5,9

TABLE IV

EXTERNAL DEBT 1988, BILLIONS DOLLARS (WORLD BANK REPORT 1990, TABLE 24)

	Total Debts In 1988	Debt Service/ Exports (%)
China	32	6,9
India	49	21,8
Other poor countries	167	25,3
Intermediary income countries	663	21,6
Or		
Subsaharan Africa	112	16,5
East Asia	150	13,3
Latin America and Carribean	335	28,1
(Heavily endebted)	406	26,2
Or MORE THAN 20 BILLIONS $		
Brazil	90	35,9
Mexico	81	30,3
Argentina	48	32,6
Egypt	42	13,9
Indonesia	41	34,1
Poland	34	10,0
Turkey	31	34,1
Nigeria	29	24,2
Venezuela	25	9,2
Algeria	23	77,0
Philippines	23	25,6
Korea	21	9,1

ASIAN JOURNAL OF ECONOMICS AND SOCIAL STUDIES

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THE SOCIETY FOR ASIAN DEVELOPMENT

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COUNTERTRADE, LICENSING AND DIRECT FOREIGN INVESTMENT: COMPARATIVE EFFECTS ON LDCS AND MNES

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Countertrade is a form of international trade that has been receiving much attention from the business community but virtually none on the part of economists. The purpose of this paper is to partially fill this gap by applying some theory to countertrade. In particular, partial equilibrium techniques are used to study the comparative effects of countertrade, licensing and direct foreign investment in subsidiaries (DFI) on both developing countries (LDCs) and multinational enterprises (MNEs). The joint decision making between LDCs on the one hand MNEs on the other in choosing among the three available options and the relevance of transaction cost theory is also discussed.

The word "countertrade" has only recently entered the terminology of international trade. It is being used to cover a multitude of particular commercial arrangements with a bewildering array of names, such as counterpurchase, buyback, switch, offsets and others. What they all share is the explicit linking of import and export transactions between the two trade partners.

Growing usage of the word countertrade reflects the rising importance of the activity itself. Almost every week there are reports of some country or company becoming involved in countertrade. Much of the growing activity involves private Western firms in their trade with either Eastern European Countries (EECs) or LDCs).

Despite the growing attention paid by the business community to this method of trade, countertrade is still an unknown subject for economists. The general purpose of this paper is to bring countertrade to the attention of economists. Its main focus, however, is to theoretically model countertrade to be able to determine how it affects the interests of the various parties involved. The two specific questions raised are: (1) What is the effect of countertrade (licensing

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*The authors would like to thank Professors Timur Kuran and Ian Novos for helpful comments on an earlier draft of this paper.

with payment in resultant products) on the welfare of an LDC relative to those of either a regular licensing agreement or direct foreign investment (DFI)? (2) How attractive is countertrade for a MNE compared to a regular licensing agreement or DFI?

The starting point of the analysis is a simple model from Bardhan (1982) where the welfare effects of a licensing agreement and a subsidiary on an LDC are compared. Several changes in Bardhan's model are necessary to accommodate countertrade as an alternative. The results of the amended model are used to evaluate the performance of countertrade. Both analytic and simulation techniques are used.

The paper is organized a follows: in section I we attempt to present some background information on countertrade such as its definition, magnitude and its various forms along with the reasons why it is practiced. Section II briefly presents the basic model. Sections III-V cover the countertrade model, its implications for the welfare of both LDCs and MNEs and the joint decision making of the two parties. The conclusions of the countertrade model are presented in section VI.

I. What Is Countertrade?

While because it is new, terminology about the forms of countertrade lacks standardization, a general definition can be provided. According to the US Department of Commerce (1978), a countertrade transaction is one in which a seller provides a buyer with deliveries and contractually agrees to purchase goods from the buyer equal to an agreed-upon percentage of the original sale values.

One problem in assessing countertrade is uncertainty concerning its magnitude. Different sources vary in their measures of the actual number of countries involved in countertrade and the proportion of world trade comprised of countertrade. Estimates of the percentage of countertrade in world trade vary from 5% to 30%, but are as high as 50% in some kinds of trade such as East–West trade.

Most problems of quantification stem from the fact that neither enterprises nor countries record linked bilateral transactions separately in their international accounts and disclosure statements (Welt 1984, Hodara 1984, Verzaria 1985).

A. *The Main Forms of Countertrade*

Using OECD (1985) categorization, countertrade transactions can be divided into two categories: (1) commercial compensation and (2) industrial compensation.

1. *Commercial Compensation*

Commercial compensation typically consists of an obligation, assumed by one party at the time of effecting a sale, to undertake or cause to be undertaken purchases of products generally not related to or derived from the products sold. The purchases do not necessarily have to be made from the same enterprise as that which bought the goods in question. They are generally one-shot operations for small or moderate amounts, typically completed in 2 or 3 years. The fact that the goods involved in the two transactions are not related is the key difference between commercial and industrial compensation.

2. *Industrial Compensation*

Industrial compensation, on the other hand, involves the sale of technology, plant or equipment with a contractual commitment on the part of the seller to purchase a certain quantity of products that are produced by or derived from the original sale. Because these transactions involve setting up entire production facilities, their values can run into hundreds of millions of dollars. The commitment to buy back goods as a proportion of the original sale is typically greater than in the case of commercial compensation, with counterdeliveries often totalling 100% or more of the value of the original sale. Also, the duration of the transaction is typically much longer, even as high as 25 years.

B. *The Motivation for Countertrade*

LDCs and EECs encourage and mandate countertrade in order to reduce their trade imbalances, foster the exports of certain industries targeted for growth, upgrade certain individual sectors through foreign investment, and safeguard their hard currency reserves. Western countries and companies seem to accept countertrade demands in order to achieve sales that otherwise would be impossible and to gain prominence in new markets, thereby enhancing the prospects for future sales (Welt, 1982). In the case of countertrade requirements imposed by industrialized countries, trade imbalances and hard currency reserves are not the issue. Rather, countertrade is demanded in these cases because of (a) the buyer's leverage over individual supplies in industries in which supply exceeds demand, (b) the procurement is large and (c) there are a number of companies bidding for the contract (Welt, 1985). While each group of countries described above imposes countertrade for the same basic reasons, different countries use this unconventional method of trade in differing degrees and different ways.

II. The Basic Model

The model in Bardhan 1982 considers the case of an LDC that has the choice of: (i) producing cars at home in a domestic firm *licensing* the technology from a MNE, from which it also buys the necessary intermediate components, i.e., the familiar case of licensing with tied purchase of inputs, or (ii) producing them at home in a *subsidiary* of a MNE-DFI. Alternatives (i) and (ii) are denoted *L* and *S* respectively in subsequent analysis. In the case of *S*, the import of components involves intrafirm trade, whereas in the case of *L* it is interfirm.

The desirability of each alternative is evaluated in terms of total national welfare. In the case of *S* this is the amount of consumer surplus generated in the domestic market for cars, whereas in the case of *L* it is this consumer surplus plus the profits for the domestic firm. For simplicity, there is no tax or tariff revenue and all profits of the wholly owned subsidiary in the case of *S* are remitted abroad.

In the case of L, license fees or royalties are ignored since, with tied purchase of components, the price charged for the latter provides enough leverage for the transnational company.

Finally, it is assumed that is in the case of domestic production under S the size of the domestic market is such that it allows the subsidiary of only one transnational company to cater to this market; similarly in the case of L the licensing firm has a monopoly in the domestic car market.

The domestic market for cars is characterized by the following constant-elasticity demand function:

$$Q = P^{-\eta}, \eta > 1 \tag{1}$$

where Q is the amount demanded, P is the price, and η is the (positively defined) price elasticity of demand.

If Q_S and Q_L are the equilibrium quantities of cars produced under S and L, respectively, the expressions for total national benefit are:

$$B_S = \int_0^{Q_S} [P(Q) - P(Q_S)]dQ$$

$$= \frac{Q_S^{\eta - 1/\eta}}{(\eta - 1)} \tag{2}$$

$$B_L = \left[\int_0^{Q_L} P(Q)dQ \right] - C(Q_L) \tag{3}$$

where B_S is the consumer surplus at quantity Q under S; B_L is the consumers surplus plus the producer profits at quantity Q_L; and $C(Q_L)$ is the cost function associated with production under L. No part of producer profits under S enters the expression for national benefit, since all of it is assumed to be remitted abroad.

Car components m, are assumed to be produced abroad by the MNE at a fixed per-unit cost k. Imported components m and domestic labor l are combined in fixed proportions to produce cars at home, so that

$$Q = \min(m, l) \tag{4}$$

The domestic market equilibrium for Q, characterized by marginal cost equal to marginal revenue, from equation (1), yields.

$$Q_i = \left[\frac{\eta M_i}{(\eta - 1)} \right]^{-\eta}, \quad i = S, L \tag{5}$$

where M_i is marginal cost for regime i.

Under regime S, the subsidiary of the MNE maximizes

$$P(Q_S)Q_S - \omega l - km$$

subject to equation (4), paying domestic labor at the local wage rate ω. The cost function is this case is:

$$C_S(Q_S; k, \omega) = (\omega + k)Q_S \tag{6}$$

Computing marginal cost, M_S, from equation (6) and output Q_S from equation (5), equation (2) are be rewritten as

$$B_S = (\eta - 1)^{-1}\left(\frac{(\eta - 1)}{\eta(\omega + k)}\right)^{\eta - 1} \tag{7}$$

As for the alternative regime L, q_1 is assumed to be the price charged per unit of car components by the MNE. The cost function of the licensing domestic firm is:

$$C_L(Q_L; q_1, \omega) = (\omega + q_1)Q_L \tag{8}$$

Computing marginal cost M_L and putting it into equation (5), one gets $Q_L(q_1)$. The demand for car components, $M(q_1)$, can be computed by using Shephard's lemma, so that

$$m(q_1) = \frac{\partial C_L}{\partial_{q_1}} = Q_L(q_1) \tag{9}$$

The MNE licensor will utilize its monopoly power (derived from the tied purchase of components by the licensee) to fix q_1 at a level which maximizes the former's profit from the sale of components, that is $(q_1 - k)m(q_1)$. From the first order condition we get:

$$q_1 = \frac{(\omega + \eta k)}{(\eta - 1)} \tag{10}$$

Rewriting equation (3), using equations (5), (8) and (10), we get:

$$B_L = \left[\frac{(2\eta - 1)}{(\eta - 1)^2}\right]\left[\frac{(\eta - 1)}{\eta}\right]^{2\eta - 1} (\omega + k)^{1 - \eta} \tag{11}$$

Having derived the expressions for total national benefit under S and L in equations (7) and (11), respectively, in terms of the parameters η, ω, and k, the two regimes are then compared:

$$\frac{B_L}{B_S} = \left(2 - \frac{1}{\eta}\right)\left(1 - \frac{1}{\eta}\right)^{\eta - 1} = f(\eta) \tag{12}$$

In his paper, Bardhan proves that $f(\eta)$ is less than unity for all values of $\eta > 1$; implying that under the conditions stated DFI would contribute more to the national welfare of the host country than a domestic firm licensing the technology (with tied input purchases) from the MNE. The primary reason behind this result is that the distortion caused by monopoly pricing of intermediate goods for downstream producers is avoided by vertical integration by the MNE. So the subsidiary will market cars at a lower price (which generates more consumer surplus) than the licensing domestic firm.

III. The Countertrade Model

In describing the countertrade model, it is important to consider what we are assuming about the external world and the general environment of international trade. If free trade as advocated by GATT were practiced and there were no transaction costs, all countries involved would benefit and unconventional methods of trade like countertrade would not be necessary. However, today's international trade environment is plagued with high and rising transaction costs and barriers to trade. It is in this environment that countertrade arises as an additional alternative and, therefore, it is in this general context that we assess its net benefit or costs.

Countertrade is introduced into the model as LC which stands for licensing with payment in resultant products or more simply licensing with countertrade. It is one form of industrial compensation.

Other than being the fastest growing form of countertrade, industrial compensation is interesting in still another way. Unlike commercial compensation, where the counterpurchased goods are unrelated to the original sale and often hard to dispose of by the DCs, the goods counterpurchased by the DCs under industrial compensation are the products of their own plants or technologies but produced at lower labour costs in LDCs or EECs. This means that it is actually in the interest of the DCs to increase and not decrease the amounts of final products they buy back because they will either use it in their own lines of production, which would mean a cheaper input than if it were produced at home, or sell it in the international market for a profit.

The procedure followed in analyzing countertrade is to repeat the same calculations as in the basic model for alternative LC in the modified model, and then to compare the benefits to the LDC associated with the three alternatives. The market structure, choice of production and demand functions and finally the measure of welfare are assumed to be the same for LC as for the other regimes.

The introduction of the new regime LC into the basic model adds the following:

(a) The industrial compensation requirement that the payment for components is in terms of final output:

$$q_2 m(q_2) = P_2 CT \tag{13}$$

where $q_2 m(q_2)$ is the total value of components imported by the developing country, q_2 being the new price of components to be decided upon by the licensor (MNE) in the same manner as in a regular licensing agreement. CT is the amount of final output, here cars, that the MNE has to purchase from the LDC at a price P_2 per unit so that the equality in equation (13) holds.

In this version of the model P_2 is chosen to be equal to P, the domestic price for cars, which implies that equation (13) can be rewritten as:

$$q_2 m(q_2) = P(Q_{LC}) CT \tag{14}$$

where Q_{LC} is the total amount of production under *LC*. We note that equations (13) and (14) imply that the payment for components by the LDC is made fully in terms of the final output as is typical in industrial compensation.

(b) The expression for the total national welfare of the LDC under countertrade is still consumers' surplus plus producer's profit. However, since the quantity sold in the domestic market under countertrade is less than the total amount of production Q_{LC}, both consumer and producer surpluses have to account for this change. The total national benefit under *LC*, B_{LC}, is given by the expression:

$$B_{LC} = \left[\int_{0}^{Q_{LC} - CT} P(Q)\, dQ \right] - \omega(Q_{LC}) \tag{15}$$

(c) Given the above description of the nature of industrial compensation, the MNE now has another motive besides maximizing its profits on the sale of components to the LDC, namely, to maximize its profits from selling *CT* in the international market. Mathematically, the licensor's decision-making problem becomes:

$$\max\, ((q_2 - k)m(q_2) + (P_1 - P_2)CT) \tag{16}$$

where P_1 is the price at which the MNE sells *CT* in the international market and $(P_1 - P_2)$ represents the profit gained by the MNE on each unit of *CT*.

P_1 is assumed to be equal to γP where $\gamma > 1$, i.e., P_1 is defined to be a price higher than the domestic market at which the MNE buys *CT* from the LDC (result #4 discusses the other values that γ can take). The expression in equation (16) can then be written as:

$$\max\, ((q_2 - k)m\,(q_2) + (\gamma P - P)CT) \tag{17}$$

Substituting for *CT* from equation (14) and solving for the first order condition of the maximization problem in equation (17), we get:

$$q_2 = \frac{(\gamma\omega + \eta k)}{\gamma(\eta - 1)} \tag{18}$$

where q_2 is the unique feasible solution of the maximization. Using equation (18) we now solve for Q_{LC} and B_{LC}:

$$Q_{LC} = \left[\frac{\eta^2(\omega\gamma + k)}{\gamma(\eta - 1)^2} \right]^{-\eta} \tag{19}$$

$$B_{LC} = \frac{\eta}{\eta - 1}(Q_{LC})^{(\eta - 1)/\eta}(1 - q_2 Q_{LC}^{1/\eta})^{(\eta - 1)/\eta} - \omega Q_{LC} \tag{20}$$

If we move on to evaluating the performance of all three regimes *L*, *S* and *LC* by comparing the expressions in equations (7), (10), (11), (18) and (20), we reach the following results:

Result 1

The price of components under *LC*, q_2, is significantly less than q_1, the price of components under *L* in the basic model. Figure 1 shows the significant difference between q_1 and q_2 for all values of η. The introduction of countertrade helps reduce the distortion caused by monopoly pricing of intermediate goods for downstream producers.

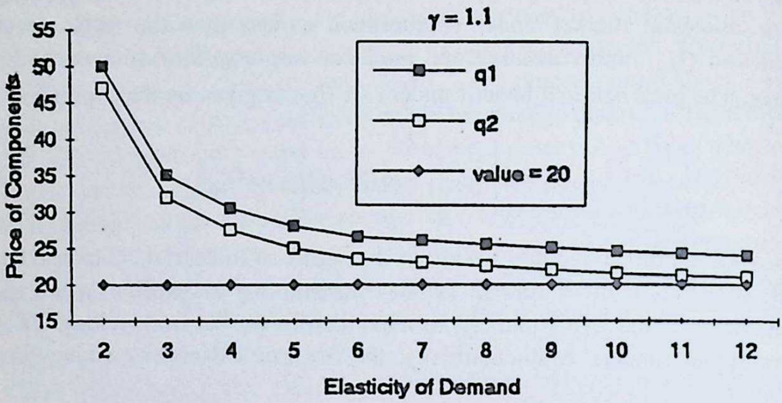

Fig. 1 Relationship between the elasticity of demand and q_1, q_2

The lower price of components under countertrade reflects greater efficiency. It also reflects a change in the attitude of the MNE towards the LDC as it is no longer in the best interest of the MNE to charge the highest price possible for the components. The explicit linking of the import of components to the export of the final output, by making the payment for the components in terms of cars, creates a mutually beneficial relationship between the two parties that discourages exploitation on the part of the MNE even if it were possible.

Result 2

B_{LC} or the national benefit under LC is higher than B_L the national benefit under L, i.e., LC contributes more to the national benefit of the LDC than L. This conclusion was reached by calculating the ratio of B_{LC} to B_L from equations (20) and (11) and proving that it is greater than 1. Since it is analytically cumbersome to perform the latter task, computer simulations were used. The ratio B_{LC}/B_L was computed over different ranges of the various parameters: $\gamma = (1.05, 1.1, 1.15)$ and $\eta = (2, 3, \ldots, 16)$ with $\omega = 10$ and $k = 20$.

As shown in Figure 2, B_{LC}/B_L increases as η increases, i.e., the more competitive is the domestic market, the more superior is the countertrade alternative to a regular licensing agreement. From Table 1 we also note that B_{LC}/B_L increases as γ increases, i.e., the more the profit achieved by the MNE per unit of counterpurchased goods, the better the countertrade alternative for the LDC.

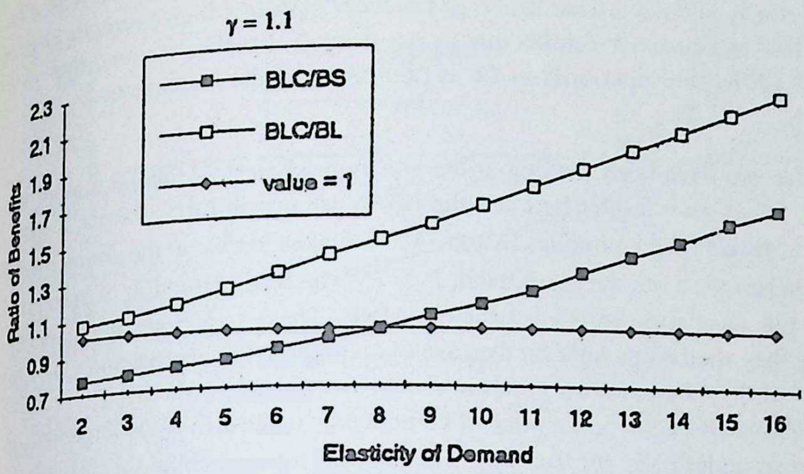

Fig. 2 Relationship between the elasticity of demand and B_{LC}/B_L, B_{LC}/B_S

TABLE 1
RELATIONSHIP BETWEEN B_{LC}/B_L, B_{LC}/B_S, and $\gamma(\eta = 8)$

γ	B_{LC}/B_L	B_{LC}/B_S
1.05	1.11	0.81
1.10	1.37	1.01
1.15	1.68	1.24

Under *LC* there is a gain in both consumer and producer surpluses. If *CT* is larger than the difference between Q_L and Q_{LC}, there will be a loss in consumer surplus that is overcompensated by the gain in producer's profit. The main reason behind the superiority of *LC* is a lower marginal cost (M_{LC}) which implies a larger output and a lower domestic price for the consumers. Both of these result in a larger national welfare despite the fact that less than the total amount produced is consumed locally. As γ increases, q_2 decreases which means an even lower marginal cost. As a result, output is even higher, implying that welfare is higher under *LC*. As η increases, there is a shift to the new demand curve where q_1, q_2, Q_{LC}, Q_L, P_L, and P_{LC} are at lower levels than before.[1] As a result, both B_{LC} and B_L decrease. B_{LC} remains, however, larger than B_L for each level of η and as η increases, B_L decreases faster than B_{LC}; so the ratio B_{LC}/B_L increases and is larger than 1.

Result 3

Following the same procedure explained above, it was found that *LC* is superior to DFI for most values of $\eta(B_{LC}/B_S > 1$ for all $\eta > 8)$. B_{LC}/B_S also increases as η and γ increase (Figure 2 and Table 1 above). The main reason for the superiority of countertrade is a large producer's profit which overcompensates for the loss in consumer surplus due to not using S. Finally, we note that, as in Result 2 above, the superiority of LC is reinforced by the increase in γ.

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[1] Significant values were found only for values of η between 2 and 11.

Result 4

So far, we have been looking at the situation when $\gamma > 1$ which implies that $P_1 > P_2$. What we consider here are the two other possibilities, $0 < \gamma < 1$. When $0 < \gamma \leq 1$, $P_1 < P_2$ which implies that the MNE makes losses on the countertraded goods. When $\gamma = 1$, on the other hand, $P_1 = P_2$ which is a situation of zero profit (but at the same time zero loss) for the MNE. These two cases are important because they shed some light on the case of commercial compensation where the disposal of the countertraded goods is always a problem for the MNE.

As shown in Figure 3, the price of components under LC, q_2, is larger than its counterpart under L, q_1, for $0 < \gamma < 1$. The primary reason behind this result is the loss the MNE makes on the countertraded goods because $P_1 < P_2$. To compensate for its loss, the MNE charges the LDC a higher price for the intermediary components. When $\gamma = 1$, on the other hand, $q_2 = q_1$ which means that the countertrade option gives the same results as regular licensing. Since the MNE makes no profit on the countertraded goods, its only concern is the maximization of its profit on the intermediary components which is the same situation as in a regular licensing agreement.

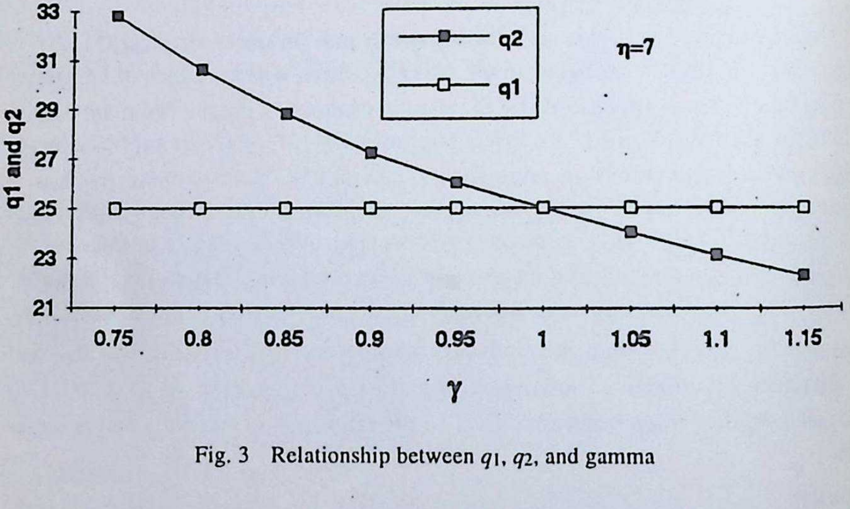

Fig. 3 Relationship between q_1, q_2, and gamma

The relationship between B_{LC}, B_L and B_S also changes as γ changes its values. As shown in Figure 4, $B_{LC}/B_L < 1$ for $0 < \gamma < 1$ which means that countertrade contributes less to the welfare of the LDC than regular licensing does. This result follows directly from the fact that for $0 < \gamma < 1$, the price of components under

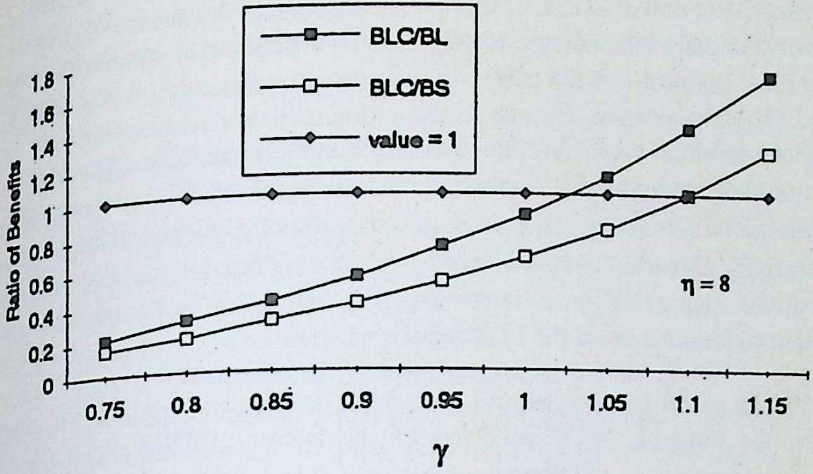

Fig. 4 Relationship between the ratio of benefits and gamma

LC is higher than under *L*. The higher price of components leads to higher costs, lower ouput and lower welfare for the LDC. When the price of components is equal under countertrade and licensing, countertrade still contributes less to the national benefit of the LDC than regular licensing because less than the total output is being consumed at home. As for the comparison between DFI and countertrade, the former alternative was found to be superior to the latter in its contribution to the national benefit of the LDC for $0 < \gamma < 1$. The high costs associated with countertrade make it a less efficient alternative for the LDC.

IV. The Introduction of MNEs into the Countertrade Model

In the previous sections the focus was on how the LDC is affected by countertrade. Shifting the attention to the MNE, however, is extremely important because it allows us to investigate the sweeping but unsubstantiated claim in the literature that Western companies must be coerced into the use of countertrade, resulting in financial losses.

Assuming that the MNE has the option of choosing between countertrade, regular licensing and DFI, we compare profits gained by the MNE in each of these three cases. The alternative that generates larger profits for the MNE would clearly be the more attractive option.

The profits of the MNE under regular licensing, countertrade and DFI are represented by L_1, L_2 and L_3 respectively.

$$L_1 = (q_1 - k)m(q_1) \tag{21}$$

$$L_2 = (q_2 - k)m(q_2) + (P_1 - P_2)CT \tag{22}$$

$$L_3 = PQ_S - C_S(Q_S; k, \omega) \tag{23}$$

L_3 is expressed as the producer's profit on the final output produced Q_s. As explained in Section 2 above, this profit does not go to the LDC; instead it is remitted abroad to the interest of the MNE. L_2 consists of two parts. The first part represents the profit of the MNE on the sale of intermediary components to the LDC. The second part represents the profit it makes when selling *CT* in the international market. L_1, on the other hand, is the expression for profits on the intermediary components. L_2 and L_1 are the same basic expressions that we maximized above to get values for q_2 and q_1. Finally, we note that comparisons between L_1, L_2 and L_3 are conducted by calculating the ratios of any two of these three and comparing them to 1, which is the same procedure followed in comparing regimes from the LDC's point of view.

We first start by comparing countertrade to regular licensing. We compute L_2/L_1, the ratio of profits achieved by the licensor (MNE) under *LC* to its counterpart under *L*, and compare what we get to 1 for various values of η and γ. We start with $\gamma > 1$, or the case of industrial compensation, which is our main interest. From computer simulations in Figure 5 we note that given η and γ, L_2/L_1 is considerably larger than 1. This means that, given any particular level of elasticity of demand in the domestic market, the profits achieved by the MNE under countertrade are always much larger than those achieved by the same licensor under a regular licensing agreement. This is in spite of the fact that as we proved in the previous chapter that the price of intermediary components under *LC* is lower than that under *L* which means the MNE makes less profit per unit of intermediary components under countertrade than under a regular licensing agreement. We also note that as η increases, L_2 and L_1 tend to change at the same rate which leads to a constant ratio.

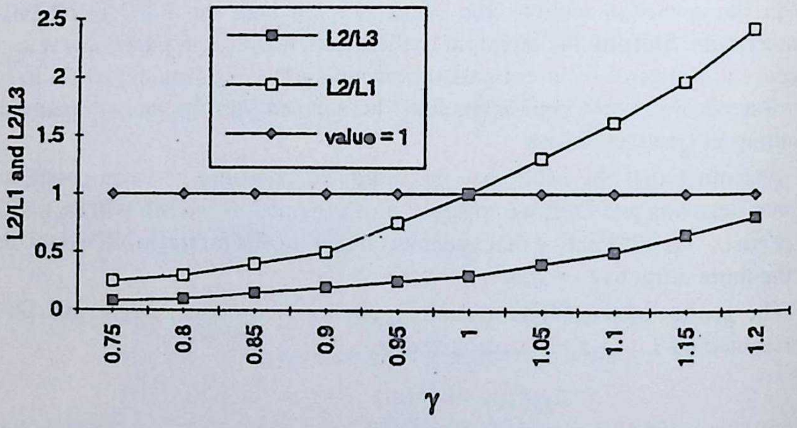

Fig. 5 Relationship between gamma and the ratio of profits

The reason behind this result is that, when $\gamma > 1$, not only does the MNE make profits on the countertraded goods but it also makes higher profits on the components because it charges a lower price which increases demand as explained above.

As η increases, final output decreases which leads to lower levels of profits for both *LC* and *L*. The relationship between *LC* and *L* remains the same, however, as profits under *LC* are larger than those under *L* for each level of η.

If we follow the same procedure described above to compare profits gained by the MNE under the *LC* option (L_2) to their counterpart under $S(L_3)$, as shown in Figure 5 we find that $L_2/L_3 < 1$ for all values of η. DFI generates larger profits for the MNE than countertrade does and is therefore a more attractive option. The main reason behind this result is that Q_S, the final output under the *S* option, is larger than its counterpart under *LC*, Q_{LC}. The large Q_S implies a producer's profit (L_3) that is larger than (L_2) in spite of the low price of components and the profit made on the sale of *CT* in the international market under *LC*. *S* is also superior to regular licensing (*L*). Finally, note that as η increases, L_1, L_2 and L_3 tend to decrease at the same rate which leaves L_2/L_1, L_2/L_3 and L_1/L_3 constant.

When $0 < \gamma \leq 1$, countertrade is the least desirable option for the MNE. As shown in Figure 5 both L_2/L_1 and L_2/L_3 are less than 1. If classified in order of preference for the MNE, DFI would rate first followed by licensing and lastly countertrade. To compensate for its loss on the countertraded goods, the MNE raises the price of components it charges the LDC. A high price of components leads to low demand and ultimately low profits for the MNE.

V. Equilibrium and the Relevance of Transactions Cost Theory

The LDC and the MNE are trying to choose among the three available alternatives *S*, *LC* and *L*. Assuming that both the LDC and the MNE are aware of the forms of agreement that maximize their welfare, an equilibrium is reached when they agree on a specific option. This can happen in two ways: (a) the same regime maximizes the welfare of both the LDC and the MNE and in that case the equilibrium is unique; and (b) when one regime maximizes the welfare of the LDC while a different one maximizes that of the MNE. In the latter case the equilibrium is not unique. Only one equilibrium can prevail, however, and it is in the choice among equilibria that transaction costs play a role.

From the above analysis we note that in the cases of $0 < \gamma < 1$ and $\gamma > 1$ with $\eta < 8$, the interests of the LDC and MNE are in harmony. The *S* regime maximizes the welfare of both parties and is, as a result, the unique equilibrium. The interests of the LDC and MNE are in conflict, however, when $\gamma > 1$ and $\eta > 8$. In that case, there are two equilibria *S* and *LC*, the former being more favourable for the MNE and the latter being more favourable for the LDC. Since there is nothing in the model that favours one equilibrium over the other, factors outside the model would have to determine which one it is going to be.

The choice between equilibria can be analyzed from two different perspectives: the bargaining perspective and the transactions cost perspective. The bargaining framework is the most familiar one for analyzing the relationship between the MNE and the host LDC (Teece, 1986). On one side, the MNE is depicted as having the technology, experience, skills and access to finance and markets that the LDC needs. On the other hand, the LDC is depicted as having the resources, labour force and other factors which can often be configured to provide an attractive investment for the MNE. The assets that each party possesses determine its bargaining power at the negotiating table. The party that is more powerful will use its power to coerce the other party into accepting a form of agreement that is not the most efficient from the latter's point of view. Negotiating power also depends on the special nature of the projects and how badly it is needed by both parties.

If we look at the choice problem in a transactions cost analytical framework, we note that in choosing between *S* and *LC* the LDC and MNE are basically choosing between two forms of contracts. The form of contracts that minimizes the transactions costs is the superior one. While DFI, or *S* in our model, has been known for being a vehicle for the transfer of technology to the LDCs, empirical evidence has proved that there is plenty of room for opportunistic behaviour on the part of both the MNE and the LDC under this form of investment. Several studies (for example Dunning, 1979; Hawkins and Prasad, 1981) have attempted to measure the extent of the technology transfer and benefit to the LDCs through DFI. Most of them came to the conclusion that, by and large, the subsidiaries do not fulfill their promises and tend to exploit local markets rather than benefit them. LDCs often complain the MNEs do not meet their promises of export targets because they find the local market more profitable. At the same time, MNEs complain of opportunistic behaviour on the part of the LDCs. Once the deals are signed and assets, typically hard to withdraw, are deployed by the MNE on the host country soil, the LDC is able to bring pressures to bear for "renegotiations", "adjustments", "surtaxes", "recomputations" and the like—all manifestations of *ex post* transaction costs. From the point of view of the MNE, the LDC begins to cheat on its agreements (Moran, 1974; Mikesell, 1971; Teece, 1986).

If we consider the case of *LC* or countertrade, we find that linking the import of technology by the LDC to the export of products produced by that technology to the MNE tends to reduce the opportunistic behavior by the MNE that is described above. The relationship between the two parties does not end at the sale of technology but extends far beyond which has the effect of guaranteeing that any exploitation on the part of the MNE will be reflected in the quality and pricing of the products it gets back. This situation tends to alter the incentives of the MNE more towards fulfilling its promises to the LDC. At the same time, however, because so much is still unknown about countertrade and there are no universal rules governing it, most studies agree that negotiations are often costly and complicated (e.g., Business International Research Report, 1984).

Which one of the two regimes is superior? The answer really depends on the situation. For instance, an LDC that has favourable previous experience with DFI and dreads the involvement into an unconventional method of trade as countertrade would tend to favour *S* even though it doesn't maximize its welfare. Also, an LDC that is not aware that countertrade maximizes its welfare because of all the conflicting arguments in the business media, the uncertainty of the trade environment and the lack of information on countertrade would also tend to favour DFI. Similarly, a MNE that is well equipped to handle countertrade agreements and that anticipates a long term relationship with this particular LDC would favour countertrade to DFI. Also, a MNE with previous successful experience with countertrade or unsuccessful experience with DFI would prefer *LC* to *S*. In fact, negotiating costs may be so high and so complicated that both sides may choose to avoid them by settling on *L* or regular licensing which is an inferior option for both of them.

It is very unfortunate that we don't have empirical evidence from the car industry to support or refute the conclusions of this model.

VI. Conclusions of the Countertrade Model

The results of our model indicate that countertrade in its industrial compensation form is generally superior to both regular licensing and DFI as far as the welfare of an LDC is concerned, in spite of the fact that less than the total output produced is consumed at home. The main reason behind this result is that the linking of transactions that is the essence of countertrade creates an extended mutually beneficial relationship between the LDC and the MNE which tends to reduce the exploitative power that the MNE is likely to exercise under the other regimes. This result is particularly interesting because it qualifies the conclusions reached in Bardhan's 1982 paper. The mere addition of countertrade (payment for components in terms of final output) to a regular licensing agreement has the effect of boosting the modified licensing to a position superior to alternative *S*.

As far as the MNE is concerned, we conclude that the notion that Western companies always make losses when using countertrade needs to be qualified in more than one way. While DFI seems to achieve more profit for the MNE when compared to countertrade, the latter is superior, in all cases, to a regular licensing agreement despite the fact that the profit the MNE makes per unit of intermediate components is smaller under countertrade than its counterpart in the case of licensing.

Which of the three regimes will actually be agreed upon by the two parties involved is very difficult to determine as it depends on several factors outside the model. Bargaining power and transactions costs would be very relevant. Also important is the accessibility of the two parties involved to the regular channels of trade as this will determine whether or not they will be interested in countertrade in the first place.

In the case of commercial compensation, the other major category of countertrade that was touched upon here, countertrade was found to be inferior to the other two alternatives for both the LDC and the MNE mostly due to the difficulty of disposing of the countertraded goods that is typical under this type of countertrade which leads to the conclusion that commercial compensation should be used cautiously by both sides. It also pinpoints the possible disruption that can arise if commercial compensation is used haphazardly.

Finally, it is important to recognize some limitations of the countertrade model developed in this paper. First, the measure of LDC welfare as consumer surplus plus producer's profit may not be the best measure of welfare. Second, although general equilibrium was considered briefly in the last section, the analysis is only partial equilibrium in character. Third, neither income distribution effects nor taxation and public finance were taken into account in this model. While it is very unfortunate that the results reached here cannot be tested empirically due to lack of data, when such data becomes available, testing should be straightforward.

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THE DECLINE OF RAW MATERIAL PRICES

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The Decline of Raw Material Prices

In recent years most commodity prices are at very low levels. In the relevant economic literature the sharp price decline is ascribed to several causes, like for instance the recession and the process of deindustrialisation. An unexpected break-through of a series of technological innovations is mentioned as another cause. Owing to this a de-materialization process has been induced. The generally accepted view is that the de-materialization process is a recent phenomenon. It is more likely however that this is an ongoing process, commencing probably already in the early start of the Industrial Revolution. Until recently the effects of the de-materialization process on commodity demand were apparently not visible and has led to a misinterpretation of the relationship between industrial growth and commodity demand. To-day the world has come likely at a turning point: high increase of industrial output with decreasing commodity demand.

Introduction

In the eighties the commodity prices have declined to unprecedentedly low levels. In 1986 the real (i.e. deflated for price changes of manufactured products) commodity price index was 69.2 (base year 1980 = 100), a historically low level. Even during the Great Depression of the thirties the index was estimated slightly higher, namely approximately 69.3. Year 1986 proved not to be the bottom line: in 1987 the decline continued to 66.6. In 1988 there was a recovery as the index went up to 76. This recovery was just short-lived, however, since the 1989 and 1990 indices were 67 and 63 respectively. Most probably the downward trend will continue, as for the first quarter of 1991 the index is estimated at approximately 57.[1]

Commodity price indices are a crude standard for the relative price level of commodities.[2] The calculation method does not include a number of factors, like as changes in the composition of the basket of industrial products and raw materials, quality improvements in manufactured goods, and innovations in producing commodities, which lead to a reduction of the costs of production. A comparison over a long time span, which is the case in comparing the actual index with the one during the Great Depression, can lead to an overrating of the deteriorated position of mainly commodities exporting countries. In a shorter time span the influence of the factors mentioned is less disturbing and changes in the index are an acceptable basis for comparison. Surveying the last two decades, starting from the high level of commodity prices in the beginning of the seventies, the index has made a fall from roughly 135 to about 60. So, the index is more than halved in a period of less than 20 years.

The sharp relative price decline entails both positive and negative consequences, depending on it concerns commodity importing or exporting countries. The decline was beneficial for the raw material importing countries, mostly industrial nations. In 1980–82 the prices of raw materials imported by the OECD countries dropped with some 50–60% against the 1978–80 level. Owing to this the unit value of the import basket dropped with some 20–25%. According to Maizels, this decline has played "a major, possibly a decisive, role" in taming the inflation in those countries.[3] Beckerman and Jenkinson are of opinion too that the reduction of the inflation has to be ascribed highly to the lower prices of the imports and to a lesser extent to the rising unemployment and the moderate wage demands.[4]

On the other hand, for most developing countries the backsliding of commodity prices is the main cause of the debt-crisis, as commodity exports are still the main source of foreign currency for most of them. Due to the decreased export earnings the imports have to cut down too. The reduction of exports and imports have deteriorated the government finance, as taxes on exports and imports are a major source of government revenues. So, the sharp decrease of commodity price has hit very severely many Latin American and African countries.

In search of the cause of the sharp and presistent commodity price falls in the past ten to fifteen years, one can distinguish two explanations in the literature: the 'cyclical' approach and the 'structural' approach. Both approaches are demand-oriented. The first one stresses the decrease of the growth rates in the industrial countries' economies as the main force. During the recession period this approach seems the right one. But after 1982 as growth restored and price recovery did not occur the second approach looks to be a more valid one. Due to structural changes in the world economy, deindustrialization and de-materialization, the connection between economic growth and demand for raw materials has been changed fundamentally.

Each explanation as such is not convincing, as the low price levels have to be explained from the interplay of cyclical and structural forces simultaneously. We think that the connection betwen economic growth and demand for raw materials is not broken down abruptly. It alters continuously little by little due to continual modifications in the production process. These structural forces are not a recent phenomenon. This proposition will be worked out in the following paragraphs and elucidated on the basis of twelve primary commodities mainly used as inputs for the industry.

Cyclical Approach: Slow Economic Growth

As the industrial countries are still the major markets of primary commodities exported by developing countries changes in the economic activities of the developed countries are transmitted to the developing countries. According to Keynes expansion and contraction in the economic activities of industrialized countries can be regarded as the cause of violent price swings of commodities.[5] Slow economic growth in the industrialized countries leads to decreasing commodity demand and therefore to lower prices. As the import capacity of the commodities exporting countries decrease the exports of the industrialized countries to the commodities exporting countries decrease too. Owing to this the contraction in their economic activities will be intensified. In an expansion the demand for commodities increases and results in higher prices. Due to the increased import capacity of the commodities exporting countries the expansion in the economic activities of the industrialized countries will be driven up and overheat their economies. A contraction of economic activities will set in. So, on the one hand the changes in the economic activities in the industrialized countries induce the commodity price swings and on the other hand the price swings intensify the economic fluctuations in the developed countries. Therefore Keynes advocated price stabilization schemes as an instrument for reducing the economic fluctuations of the developed and developing countries.

The price fall of commodities at the end of the seventies, and the beginning of the eighties was in line with the cyclical approach. As a consequence of the recession in the highly industrialized countries the commodity prices went down. Due to accidental factors the price drop was that sharp. Firstly, commodity supply was ample, caused by large investments made in the beginning of the seventies. The expansion of investment was evoked by high prices at that time and the fear for an impending shortage of essential supplies, the so called "Club-for-Rome-syndrome". Secondly, demand decreased more than expected due to the high levels of interest and improvements in information technology.[6] The high real interest rates made stockpiling of raw materials expensive and owing to computerised stock controls, faster exchange of information and innovations in transport and trading systems fewer quantities in stock were needed.

During the sixties and the first half of the seventies the average growth rate of the OECD countries was higher than 5% a year. During the recession, in the 1979–82 period, growth was more than halved. According to the 'cyclical approach' the decline in prices, as it was caused by the recession in the industrialized countries, will be a temporary phenomenon only. When the economic expansion resumes commodity demand will go up again, and price recovery has to take place.

In 1983 the level of growth of economic activities recovered, although the level of growth was less than before the recession. The IMF was confident enough to say that "a broad-based recovery in commodity prices was under way".[7] In 1983 and 1984 commodity prices improved indeed. The price recovery was short-lived, as a new plunge set in. Then it was not rational to ascribe the price decrease to a retardation of the economic activities of the industrialized countries. On the contrary, not only the economic recovery continued, but accelerated slightly too. When price recovery did not occur explanations were needed therefor.

Cyclical Approach: Slow Industrial Growth

The question was raised whether GNP growth was a correct indicator for measuring commodity demand. It is frequently advocated that growth in the rich countries is mainly a growth of services. The output of this sector has a much lower raw-materials content than manufactures. Maizels postulates that "the rate of GDP growth overstates the rate of growth in commodity consumption".[8] According to Mikesell the growth of GNP of the industrial countries has not only levelled off, but also that "the rate of growth in industrial production in the countries slowed even more".[9] This implies that the developed countries have reached a stage of "de-industrialisation". The evidence for the de-industrialization process in the developed countries is the decreasing share of manufacturing and the increasing share of services in GNP. For the market economy countries the share of manufacturing has slipped from 28.4% in 1960 down to 23.2% in 1986. The developed market economies alone experienced a decline of 7.4 percentage points: from 31.0% to 23.6%. The share of the service sector (including construction) went up from 57.2% to 67.8%.[10]

One can raise the question whether a decreasing share of manufacturing and an increasing share of services in GNP is a sufficient evidence for the proposition that the growth of manufacturing or industry lags behind the growth of the GNP and that therefore a process of deindustrialization has begun.

In our opinion the share of a sector can decline although the growth rate of the sector is higher than the average growth rate. This "paradox" is the result of differences of the methods how growth figures and sectoral shares are calculated. Growth figures are calculated from *constant* prices whereas sector shares are calculated from *current* prices.[11] In calculating growth figures the increase in the quantities produced is measured. In other words, growth is the increase of the volume produced. In determining the shares of the various sectors from which the GNP originates, the output values of various sectors are weighted. It may be possible, therefore, that during a certain period the increase of the volume output of a certain sector is higher than another sector, but, that the increase of the value of output of the latter sector is higher than the first. One has to ascertain that during the observation period the terms of trade of the goods of first sector deteriorate in relation to the goods of the second sector.

In the UN's "Statistical Yearbook" one can find annual growth figures of total GNP and the growth figures of the various sectors from which the GNP originates, like for instance the sectors industry and manufacturing. Generally speaking the rate of growth of manufacturing has not lagged behind the rate of growth of total GNP. Over the period 1960–86 the average growth rate of manufacturing of the market economies (developed as well as developing) was approximately 4.2% a year and that of total GNP 3.8% a year. For the developed countries alone the growth rates were 4.1% and 3.6%, respectively. In 1960 the share of manufacturing in GNP was 28.4%. Measured in constant 1960 prices the 1986 share of manufacturing would have been 32.8%: an increase from 28.4% up to 32.8%. Measured in current prices the proportion did fall to 23.2%, however.

Based on constant price ratios between the products of the manufacturing sector and the products of the other sectors the increase with 4.4 percentage points corresponds with roughly an annual increase of 0.5% to 0.6%. Based on current prices however the share of manufacturing decreased with 5.2 percentage points, which corresponds with a decline of approximately 0.7% to 0.8% per annum.

The relative decline of the share of manufacturing in total GNP is not an indication of an ongoing de-industrialization process. It is the outcome of a deterioration of the terms of trade between the products of the manufacturing sector in relation to the products of the non-manufacturing sector. By and large one could say that the prices of manufactures lag 1.2% behind the price of non-manufactures per year during the period 1960–86. It seems legitimate to assume that using GNP growth figures as an approximation of the growth of manufacturing sector leads to an *under*estimation instead of as an *over*estimation, as is supposed by Maizels and Mikesell.

The analysis above is based on average growth figures. This could be incorrect and the observations of Maizels and Mikesell are correct. It is possible that high GNP growth level coincides with still higher manufacturing growth figures and that low GNP growth coincides with still lower manufacturing growth levels. If this is the case it has consequences for the demand of commodities. The reasoning is that if GNP growth is (very) low especially investments will be postponed. Generally speaking, most investments are very commodity intensive. Lawrence has examined the relation between the level of GNP growth and the level of manufacturing growth for the USA for the period 1960–73.[12] He found a break-even-point of GNP growth of 1.7% with an elasticity of 2.24. This implies that if GNP growth is less/more than 1.7% the growth of the manufacturing sector is lower/higher than the growth of GNP, seeing the value of the elasticity. Auty has undertaken a similar research for a number of industrialised countries and extended the period of investigation till 1982. His results are more or less corresponding and he concluded: "If there is a long-term decline underway in manufacturing's share of GDP in the leading advanced economies, it is of a very recent origin and the evidence is not firm."[13]

From our calculations one could gather that the value of the break-even point exhibits the tendency to decline, and not to rise. In the seventies for the market economies the critical value of GNP growth was 3.6% with an elasticity of 1.02. For the first half of the eighties the figures were 1.6% and 1.54% respectively. For the developed market economies the figures were 3.2% and 1.06% for the first period and 0.8% and 1.64% for the second period respectively. As after the recession of the early eighties GNP growth of the market economies was higher than 1.6%, one could say that the growth of manufacturing was higher than the GNP growth. There are no indications for any de-industralization process in the past decade.

If the rate of growth of manufacturing is higher than that of GNP and if GNP growth is back at the prerecession level without price recovery, then the conception of a "decoupling" is evident.[14] As there are no convincing indications for an incipient process of de-materialization, then there must have been an unforeseen, unexpected process of de-materialisation. According to this view a technological breakthrough has taken place after the recession. Recently new production processes have to be introduced; production processes that need less commodity input to produce higher volumes of manufactures. Due to the unforeseen wave of new technologies the relationship between manufacturing growth and demand for raw materials has been altered completely.

Changes in Technology: De-materialization

Since the commencement of the Industrial Revolution technological changes have become unremittingly embodied in the production process. Constantly decreasing amounts of raw materials were needed to turn out the same volume of finished goods. As the outcome of a combination of improvements in processing the raw materials and the design of the final product the quantity of steel needed for constructing one horsepower of a locomotive in 1980 is just 1.4% of the quantity of steel needed in 1810, for instance. Whereas in 1810 still 1,000 kilograms of steel were needed for generating one horse power, in 1900 the weight-to-power ratio has been reduced to 100 kilograms already. In 1925 the ratio declined further to 25 kilograms and in 1980 to just 14 kilograms.[15] This example of the lessening steel input to generate one horse power of a locomotive, illustrates that the process of de-materialization is not a recent phenomenon. From these data one could gather in the previous century the steel input decline was approximately 2.2% a year. During the first half of this century the annual decline accelerated to 2.6% and in the postwar period the reduction was approximately 1.9% per annum.

In the past century this process of de-materialisation has not led to a reduction in the total demand for steel. The increased numbers of locomotives constructed with higher-powered engines on the one hand and the use of steel for many other purposes on the other hand did raise the aggregate demand for steel. Looking at national level, in 1880 steel consumption in the USA amounted to some 60 kilograms per unit of GNP (one unit of GNP is the equivalent of one thousand 1958 dollars). Up to half-way the twenties of this century steel consumption increased to some 200 kilograms per unit of GNP. This level could be regarded as the zenith of the steel consumption in the United States. From then on a decline set in and in 1980 the use of steel per unit of GNP was back on the 1880 level.

Generally speaking, one can deduce that up to the midtwenties the annual rate of increase in America's demand for steel must have been about 2% higher than the growth of the GNP. The ongoing process of de-materialization in the existing applications was more than compensated by the applications of steel in new directions. So, the steel content per unit of GNP was increasing. From the mid twenties onwards the growth in demand for steel stayed behind the growth of GNP (with 1.4% per annum). The adverse impact of de-materialisation in the various applications was not compensated sufficiently by the usage of steel in new applications any longer. From that moment on the steel content per unit of GNP was declining. But as long as the growth of the GNP of the USA was higher than 1.4% per year *total* steel demand was still growing.

Between 1970 and 1984 the quantity of aluminium needed to produce a can has decreased by 20%. The expansion of the use of aluminium for cans occurred at the expense of the use of steel and tin for the "traditional" cans. Those metals have lost a slice of their markets to aluminium.

There is a continuous process of replacement of one commodity by another one. This process of substitution is possible between "traditional" commodities, as between steel and tin versus aluminium or between "traditional" commodities and new ones, like copper versus optical fibres, metals vesus ceramics, etc. This process of substitutions has a long record; various commodities have "disappeared" as the production was no longer competitive, like for instance chicle, guano, indigo, shellac. In the Western countries the use of natural fibres, like jute and sisal, has nearly disappeared; the man-made fibres drive out the natural fibres. Next to this substitution process the content of a certain commodity per unit of GNP can decrease as a consequence of lengthening the time of use of the final product. The development of radial tyres and the new generation of long-live batteries have reduced the demand for rubber and lead.[16]

From the examples mentioned above three stages in the life cycle of a commodity can be distinguished:

Stage A

The number of applications is growing so fast that—in spite of the de-materialization process in the existing applications—per unit of GNP the commodity content increases. Commodity demand growth exceeds manufacturing growth.

Stage B

The number of applications is growing, but at a slower pace, and is turning into a decline gradually. The commodity content per unit of GNP is decreasing. Commodity demand growth becomes smaller than manufacturing growth. But initially the difference in growth rates is still so small that, given a reasonable manufacturing growth, the total volume of commodity demand is still increasing.

Stage C

The number of applications is shirinking further and further and considering the ongoing process of de-materialization the difference in growth rates is becoming so large that a reasonable manufacturing growth rate is no longer enough to prevent a decline in total commodity demand.

Are the indications that the world economy is at a turning point, the state of transition between Stage B and Stage C? At world level we have examined for twelve commodities, what the changes have been in the use of commodities per unit of manufacturing in the period 1960–88. We concentrate on the usage of industrial materials, mainly ore and metals. We have considered the primary production only and the re-use of scrap has been left out of consideration (see Table 1). Two commodities (oil and aluminium) exhibit a change in trend during the period of observation. Between 1960 and 1974 there was still an increase in their uses per unit of manufacturing (with 1.6% and 3.1% a year, respectively), but after 1974 there has been a decline (3.6% and 2.2%, respectively). For the other basic materials, the usage is showing a gradual downtrend for the whole period of observation. For six commodities (copper, lead, manganese, sulphur, tin, tungsten) the decrease is quite substantial. The use per unit of manufacturing in 1985 was at least 40% below the 1960 level. The largest backsliding is in the use of tin: within a quarter of a century the tin content per unit of manufacturing has been reduced by two-thirds.

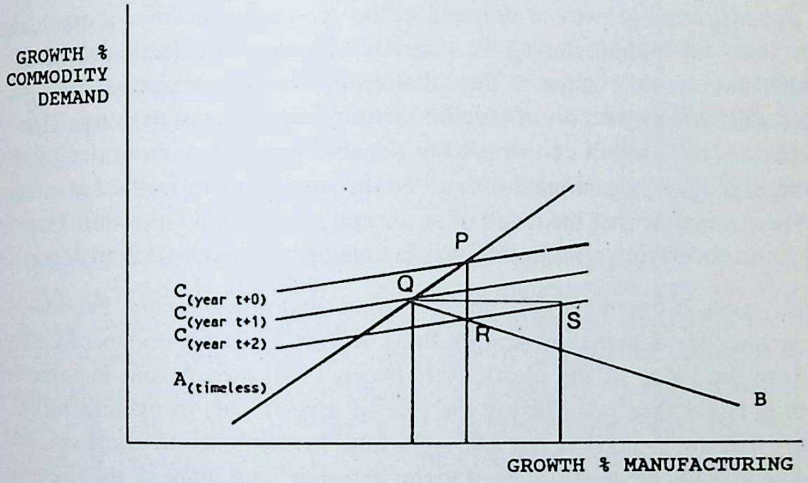
TABLE 1: INDEX OF THE QUANTITY USED OF COMMODITIES PER UNIT OF MANUFACTURING (BASE YEAR 1960 = 100) AND THE ANNUAL CHANGE IN PERCENTAGES

Commodity	Quantity in 1974	Quantity in 1985	Period of observation	Annual change
Aluminium	155	121	1960–74	+3.1%
			1974–88	–2.2%
Copper	79	62	1960–74	–1.7%
			1974–88	–2.2%
Iron	97	67	1960–74	–0.2%
			1974–88	–3.4%
Lead	79	59	1960–74	–1.7%
			1974–88	–2.7%
Manganese	75	51	1960–74	–2.1%
			1974–86	–3.5%
Nickel	104	87	1960–74	+0.3%
			1974–86	–1.6%
Petroleum	125	84	1960–74	+1.6%
			1974–88	–3.6%
Steel	96	67	1960–74	–0.3%
			1974–88	–3.2%
Sulphur	73	56	1960–70	na
			1970–86	–2.3%
Tin	54	33	1960–74	–4.3%
			1974–88	–4.6%
Tungsten	61	46	1960–74	–3.6%
			1974–88	–2.5%
Zinc	79	64	1960–74	–1.7%
			1974–88	–1.9%

Source: Calculations based on data from United Nations: UNCTAD Commodity Yearbook, various issues.

Synthesis Between the Different Views

In the cyclical approach a direct connection between the growth rate of manufacturing and the growth rate of the demand for raw materials is assumed. When during the recession demand was low and prices declined, this was in line with this approach. When economic growth came back at the pre-recession level again and the recovery of demand and the prices did not occur, the argument was forwarded that the existing relation has to be changed. Although it was stated that the level of economic activity still influences demand strongly there had to be a kind of "decoupling": the relationship after the recession in comparison with the pre-recession relationship had been changed abruptly. This decoupling had been caused by structural changes in the production processes. Against this decoupling-view one could advance that the relationship has not changed all that sudden, but, that the pre-recession relation was probably based on a misperception of the interaction of underlying forces.



Graph: Relationship between growth % manufacturing and growth % commodity demand

In the cyclical approach there is a direct relationship between the level of economic growth and commodity demand. Since for the two variables year figures are taken the influence of structural changes on demand has been interpreted in an incorrect way. As a consequence the relationship has been specified incorrectly. That the relationship was not specified in a correct way can be illustrated on the basis of the graph. The graph brings together cyclical and structural determinants. Point P represents the initial situation. It is the prerecession year with high manufacturing growth and high commodity demand growth. Point Q depicts the recession: low manufacturing growth and low commodity demand growth. Point R represents the post-recession year: resumed high manufacturing growth and continued low commodity demand growth.

In the cyclical approach the relationship between manufacturing growth and commodity demand growth is represented by curve A. When economic activities resumed one expected price recovery, which implies a movement along the A-curve back to point P. As the expected growth of demand did not occur, it was said that the traditional relationship—the slope of curve A—was not valid any longer. Due to a sudden technological break-through the relationship has changed completely and it has been replaced now by curve B.

If one assumes that the impact of technological changes on demand is an ongoing feature, the link between the two growth rates should not be depicted by the pre-recession curve A nor by the post-recession curve B. A set of parallel shifting C-curve depicts the situation in a more correct way presumably. Resumption of manufacturing growth back to the pre-recession level is then not a movement along curve A back to point P, but a movement along a downward shifted C-curve to point R. In post-recession year curve $C_{(\text{year } t+2)}$ is the relevant one. To restore the growth of demand at the pre-recession level a much higher growth rate of manufacturing is required. In this "cyclical-cum-structural" approach there is no change in the relationship between manufacturing growth and demand growth, as a set of parallel shifting C-curves are depicted. That after the recession the growth of commodity demand is different from the growth of demand in the pre-recession period, given the same growth level of manufacturing, is in our analysis not the result of an abruptly changed relationship. One could say that the underlying relationship was not changed in nature, but in degree only.

The graph is based on two simplifying assumptions. Firstly, the downward shifting lines are depicted as straight lines. Referring to the studies of Lawrence and Auty the value of the elasticity between GNP growth and manufacturing growth is larger than one. Seeing the role of investments in manufacturing it is possible that the C-curve is not a straight line. Investments are more commodity intensive than the other activities of manufacturing. The shape of the C-curve can possibly be described as an inverted logistic curve: around the break-even point the curve has more or less a constant slope, but at both ends of the curve the line becomes more and more vertical. The point here is to stress that, due to technological innovations, the curves slip downwards continuously in time and that, given corresponding rates of manufacturing, the slope of the various C-curves is equal.

Secondly, the vertical distances between the parallel shifting curves are depicted as equal. Those distances are an approximation of the influences of technological innovations on commodity demand in time. By depicting equal distances the impact of the technology on demand is assumed to be constant in time. An acceleration of new technologies adopted by the industry implies that the vertical distances between the shifting C-curves will increase.

What are the implications of this "cyclical-cum-structural" approach in studying the commodity market? For twelve commodities, mainly used as industrial inputs, the following parameters have been estimated:

The equation

$$C_D = a + b * G_M$$

reflects curve A. C_D is the growth rate of commodity demand and G_M is the growth rate of manufacturing. Coefficient b is an approximation of a change in demand growth, as a result of a change in the growth rate of manufacturing. In this relationship the cyclical and structural forces on changes in demand are taken together.

The equation

$$C_D = a + b_1 * G_M + b_2 * T_{(t)}$$

reflects the set of the C-curves. $T_{(t)}$ is the factor time. Coefficient b_1 is an approximation of the cyclical force and coefficient b_2 is an approximation of the structural force.

These coefficients have been estimated for twelve commodities and the results are summarized in Table 2.

Given the optimistic assumption of a growth rate of manufacturing of 5%, the growth of demand for those commodities has been estimated. According to the cyclical approach, commodity demand increases approximately with 2.5% to 3.0% (about the average of column B). As the cyclical approach is timeless the estimated growth of demand is valid for the years before as well as after the recession.

The cyclical-cum-structural approach is not timeless; the influence of time on commodity demand is a negative one: approximately 0.4% per year (about the average of column D). At first sight the impact of the de-materialization process does not appear to be that harmful. But it has to be stressed that the de-materialization process is an ongoing process with cumulative effects. To gauge the de-materialization effect after one decade one could say that, given a growth of manufacturing of 5%, commodity demand will *increase* with approximately 1.0% to 2.0% in the year 1985 (about the average of column E), but given the same level of manufacturing growth commodity demand will *decrease* with roughly 2.0% to 3.0% in 1995 (about the average of column F).

One should not attach too much weight to the estimated values, as many parameters are statistically not significant. It is the general tendency that stands out clearly: due to the everlasting influences of the technological process the increase in commodity demand will become lesser and lesser year after year, given the same growth rate of manufacturing. In the mid-eighties a 4 to 5% manufacturing growth seems to be sufficient for a slight increase of commodity demand, but at the end of the eighties, in the beginning of the nineties, this growth rate seems to be not enough to hold up commodity demand. One could say that, until recently, the impact of the de-materialisation process was simmering under the surface. At moderate manufacturing growth levels commodity demand still rose slightly, or remained stationary. Now it seems that the world has come at a turning point: a 4 to 5% growth of manufacturing is not sufficient enough to prevent a decrease in demand for commodities.

TABLE 2: THE RELATIONSHIP BETWEEN THE GROWTH OF MANUFACTURING AND THE GROWTH OF COMMODITIES IN THE PERIOD 1974–1988

Commodity	[A]	t	d	R^2	[B]	[C]	t	[D]	t	d	R^2	[E]	[F]
Aluminium	+2.1	4.818	1.873	0.641	+4.9	+2.5	6.504	–0.8	2.763	2.466	0.781	+2.4	–5.4
Copper	+1.6	6.615	1.195	0.771	+3.7	+1.8	9.310	–0.5	3.257	1.967	0.878	+2.2	–2.6
Iron	+0.9	3.277	2.385	0.452	+1.8	+1.1	3.498	–0.3	1.129	2.502	0.505	+1.0	–1.6
Lead	+0.2	0.722	1.076	0.039	+1.7	+0.4	1.529	–0.5	2.243	1.711	0.323	+0.2	–4.6
Manganese	–0.1	0.076	2.414	0.001	+0.6	+0.1	0.103	–0.4	0.618	2.505	0.037	–1.2	–5.2
Nickel	+2.1	4.236	2.365	0.620	+6.2	+2.2	4.179	–0.3	0.723	2.363	0.639	+4.7	+1.2
Petroleum	+0.9	3.668	1.743	0.509	+2.0	+1.0	3.793	–0.2	1.003	1.867	0.547	+1.4	–0.6
Steel	+1.3	4.147	2.033	0.569	+2.6	+1.4	4.222	–0.2	0.967	2.139	0.601	+1.8	–0.5
Sulphur	+0.5	2.404	1.654	0.292	+1.7	+0.5	2.324	–0.2	1.007	1.775	0.343	+0.6	–1.0
Tin	+0.9	6.571	2.000	0.783	+0.4	+1.0	6.131	–0.1	0.694	2.017	0.792	+0.2	–0.2
Tungsten	+2.1	2.374	1.881	0.334	+5.1	+2.4	2.632	–1.0	1.197	2.110	0.417	+0.8	–9.0
Zinc	+1.1	5.153	2.327	0.671	+3.1	+1.2	5.470	–0.2	1.364	2.452	0.715	+2.3	+0.1
Average					+2.8	+1.3		–0.4				+1.4	–2.5

t = t-value of estimated coefficient; d = Durbin-Watson test; R^2 = coefficient of determination (square of the correlation coefficient)

[A] = estimated value of coefficient b in timeless equation: (growth commodity) = $a + b *$ (growth manufacturing). It is an indication of the effect of a 1 percentage point growth increase of manufacturing on commodity demand in %.

[B] = the estimated increase of commodity demand given a 5% growth of manufacturing; estimation based on timeless equation in [A].

[C] = estimated value of coefficient b in equation $C_D = a + b * G_M$. It is an indication of the effect of a 1 percentage point growth increase of manufacturing on commodity demand, in %.

[D] = estimated value of coefficient b_2 in equation $C_D = a + b_1 * G_M + b_2 * T_{(t)}$. It is an indication of the influence of time on commodity demand as an approximation of the impact of technological innovations on commodity demand after the expiration of one year.

[E] = the estimated demand growth given a manufacturing growth of 5% in the year 1985; estimation is based on equation in [C].

[F] = the estimated demand growth given a manufacturing growth of 5% in the year 1995; estimation is based on equation in [C].

Summary and Conclusions

In 1942 Keynes proposed a commodity price stabilization policy. Such a policy would not only benefit the countries heavily dependent on commodity exports (mostly developing countries), but also the commodity importing countries (mostly the industrialized countries). For the latter group of countries the cyclical movements in their economies will be mitigated. Nowadays an acceleration of economic growth in the industrial countries does not result in a sharp increase in commodity demand. Not because the industrialized countries are supposed to go through a stage of de-industrialization. The (volume) growth of the industrial sector is still larger than the average growth of GNP. The main cause is rooted in the process of de-materialisation: the decreasing use of raw materials in producing the same quantities of manufactures. It seems to be a secular process, and not one of a recent origin. Probably, it is ongoing from the beginning of the Industrial Revolution. The adverse impact of the de-materialization process on commodity demand was obscured until recently.

Now a growth rate of manufacturing of 4 to 5% is not sufficient any more to prevent commodity demand from decreasing, unlike before the recession. This caused confusion and arguments like decoupling and de-industrialization were put forward to explain this phenomenon. It was not realized that the world economy has come at a turning point: the transition between Stage B and Stage C.

What consequences can be expected for the commodity markets if our analysis is valid? Only at very high manufacturing growth rates commodity demand will increase. Given more realistic assumptions about economic expansion demand will very likely decline. So a substantial price recovery is not in the offing. A price recovery policy or a policy to stop the long term deterioration of commodity prices has to adjust supply to the continuously decreasing demand. As the short term price elasticity of demand for most commodities is low a reduction of supply larger than that of demand will result in higher prices and higher revenues. Watching the developments on the oil market in the past two decades this might be a policy successful on the short run only. Higher commodity prices will speed up the processes of technological innovations only.

Besides, one has to stress that many developing countries are weighed down by the debt burden. The conventional prescription for structural adjustment is to boost exports and to slash imports to meet their debt-service obligations. A general reduction of supply is not a very realistic expectation therefore. Continuation of a situation with persistent oversupply is more likely. In the struggle for market standing the high-cost producing countries will be crowded out of the market by low-cost producing countries. Despite low prices these latter countries can make cost cutting investments by applying more sophisticated technologies in their production processes. The outcome of the process of adjusting supply to a shrinking demand will be borne by the economically weaker countries. Especially the African countries will be the victims of the painful adjustment process, as many of them are heavily dependent on the exports of minerals.

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PRIVATIZATION: CONCEPT ISSUES AND THE BANGLADESH EXPERIENCE

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Although the intellectual history of privatization can be traced through a line of succession running back to the classical times of Adam Smith, the worldwide turn to privatization is essentially a new phenomenon. It is so recent that the word is not found in any dictionary published before 1980.[1] The process all appears to have begun under Margaret Thatcher in the United Kingdom where between 1979 and mid-1988, state enterprise shares worth some 17 million US dollars had been sold to private buyers, and another 9 billions in government-owned housing.[2] About the beginning of the eighties, privatization seems to have turned into a movement as it spread over to various other countries at different stages of development and with different political persuasions. In the last few years, more than 60 countries have, in fact, announced plans to divest state-owned enterprises (SOEs). This includes many Third World nations, where it is being increasingly looked upon as a non-traditional development strategy and as a means of mainstreaming the beneficial role of the free market and the private sector. As an experiment-in-progress, it is, therefore, looked upon by some as one of the most

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[1] According to Adam Smith, "no two characters seem more inconsistent than those of trader and sovereign". As he further details: "In every great monarchy in Europe the sale of the crown lands would produce a very large sum of money, which, if applied to the payment of the public debts, would deliver from mortgage a much greater revenues than any which those lands have ever afforded to the crown. The attention of the sovereign can be at best a very general and vague consideration of what is likely to contribute to the cultivation of the greater part of his dominions. The attention of the landlord is particular and minute consideration of what is likely to be the most advantageous application of every inch of ground upon his estate . . . When the crown lands had become private property, they would, in the course of a few years, become well improved and well cultivated". See, Adam Smith, *The Wealth of Nations*, Book V, Chapter ii, Part I and Part II, Article 1. The modern version of the same is the so-called "bureaucratic rule of two"which states that the cost of public enterprise of producing a certain quantity and quality of goods and services will be double of private enterprise i.e. privatization of public enterprise will cut costs in half.

[2] Y. Aharoni, "The United Kingdom", in Vernon, R., ed., *The Promise of Privatization—A Challenge for American Foreign Policy, Council on Foreign Relations*, New York, 1988.

"revolutionary innovations" in the recent history of economic policy, which in a sense, may even represent the "waves of the future".[3]

However, a clear consensus is yet to emerge on the meaning, objective, methods, procedures and policies on privatization which often leads to confusion, controversies and also direct oppositon to privatization attempts. The basic object of this paper is to clarify some fundamental issues related to the subject with special reference to Bangladesh.

An attempt is first made to conceptualize the issue in section I. The rationale for privatization is provided in section II. The problems usually faced in the privatization process are briefly described in section III, while section IV indicates a number of steps which need to be taken to make the programme a success. Section V provides a brief overview on the experience of privatization in Bangladesh and finally, section VI makes a few concluding remarks.

I. The Concept

The term privatization is said to be as "ubiquitous as it is imprecise".[4] In a narrow sense, the concept is defined as to make private, especially to change (as a business or industry) from public to private control or ownership".[5] But the word has already acquired a broader meaning in which sense it "entails changes that expand the role of the private sector and contract that of the government in the economy".[6]

From the conceptual point of view, it may be useful to make an analytical distinction between privatization of ownership and forms of privatization which change the public-private mix without changing ownership. Ownership privatization can assume different forms including public offering of shares, private sales of shares, sale of physical assets, internal divestiture or fragmentation of enterprises, and management buy-outs. Non-ownership privatization refers to changes in finance, by transferring to the consumer or user of public services a larger share of their costs via higher user charges, and reduction of subsidies; changes in production or service delivery by voucher systems, deregulation, delegation or contracting-out.[7]

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[3] See Hanke, S.H., ed., *Privatization and Development*, International Centre for Economic Growth and the Institute for Contemporary Studies, San Francisco, California, 1987, Introduction by Hanke, S.H. P. 3; and Berg, E., "Privatization: Developing a Pragmatic Approach", *Economic Impact*, No. 57, 1987.

[4] This is an observatiion which was made by the Public Sector Divestment Committee of Singapore in a report submitted to the Ministry of Finance in February 1987, which has been citied in Naya, S., *Private Sector Development and Enterprise Reforms in Growing Asian Economies*, ICEG, Sector Studies No. 3, San Francisco, California, 1990, p. 64.

[5] Bennett J.T., and Thomas J. Dilorengo, *Underground Government: The Off-Budget Public Sector*, Cato Institute, Washington, D.C. 1983.

[6] Berg, E., "Privatization: Experience and Prospects", *Portfolio: International Economic Perspectives*, Vol. 14, No. 4.

[7] *Ibid.*

Note that there are three elements of public intervention which may be candidates for privatization: production, finance and regulation.[8] The government is often involved in the direct production and delivery of goods of both intermediate (e.g. school books, park benches, missiles etc.) and final nature (e.g. education, defence, trash collection, libraries etc.). If the production of trash collection, for example, were privatized, the municipality might contract with private companies to do the trash collection or it might give vouchers to residents with which to purchase trash collection services from private companies. If the financing of trash collection were shifted to households, individuals would be left to choose the quantity and quality of trash collection through their selection of private trash collectors, and the city's sanitation department would be closed. Compensatory tax reductions to households could also be made. Finally, there may be deregulation: an act of privatization which has been most marked in the eighties in banking, trucking and airlines.

Just as it is important to know what privatization is, so also it is important to know that privatization is not. Thus, privatization is not a negation of the government. On the contrary, it wants a more efficient government which focuses its attention to activities which it can best perform and thus ensure effective governance. Again, privatization does not negate production of public goods like education, health, parks etc. but only purports to transfer them to the private sector to the extent to which it may ensure better services at lower costs. Many who oppose privatization wrongly fear a crumbling down of the government machinery and an anarchic economic scene, where avarice and malpractices of the private operators will starve the society of some of its basic needs.

II. Why Privatize?

Whichever way the word is defined, the fact of the matter is that there occurred almost an abrupt and dramatic swing to privatization in the early 1980s, which grew rapidly thereafter.

This swing, in a sense is in response to a three-decade trend towards "statism" which involved expanding the role of governments in the economy to unprecedented levels through a proliferation of state's entrepreneurial and managerial activities. Governments' share of national expenditure grew at an unparalled rate particularly in the 1970s to bring such enormous shift in resources to the public sector as to have brought about a sort of a "quiet revolution" in the economy.[9] For instance, in the early 1970s, only thirteen countries were spending close to 30 percent of their GNP in the public sector; by the late seventies, the number had tripled and almost half the ninety countries for which the IMF keeps statistics—were spending more than a third of their GNP in the public sector.[10]

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[8] Pack, J.R. "Privatization of Public-Sector Services in Theory and Practice", in Portfolio, *op. cit.*; p. 524

[9] Berg, E., "The Role of Divestiture in Economic Growth", in Hanke, S.H., ed. *op. cit.*, p.23.

[10] *Ibid.*

There seemed really to be nothing too colossal or too trifling for the state sector to tackle—from mining iron to baking bread and running hotels.[11]

The decision to privatize or reprivatize the parastatal sector, otherwise known as disinvestment and denationalization in some Asian countries also informally called 'streamlining' and officially referred to as 'disincorporation' in some Latin American countries—has been guided by a variety of goals depending on the major forces which lay behind the privatization movement: pragmatic, ideological, commercial and populist.[12] The goal of the pragmatists is better government and the reason for privatization is that, if prudently pursued it leads to more cost-effective public services. The goal of those who approach the problem ideologically is less government and more private institutions because governments' decisions, being political in nature, are inherently less trustworthy than free-market decisions. The goal of commercial interests is to get more business by having more of governments' spending redirected towards them because state-owned enterprises and assets can be put to better use by the private sector. Finally, the populists strive to establish "people's capitalism" which can ensure a better society by giving people greater power to satisfy their common needs, while diminishing the authority of large public and private bureaucracies.[13] Of the above forces, however, pragmatism appears to be the strongest one, as governments of all ideological presuasions currently recognize that privatization when properly applied will lead to more cost effective government, economic growth and a higher standard of living.[14]

As a matter of fact, governments everywhere, having been confronted in the seventies with mounting budgetary costs for adminstration and social programmes, for debt service, and for covering the parastatal's losses, "have had to recognize that the traditional tools for ensuring high employment levels—expansionary fiscal and monetary policies, industrial protection, nationalization of bankrupt companies, and expanding the payrolls of state-owned enterprises—have run their course. The increasing interdependence of national economies, moreover, has prompted a greater awareness of the need to improve cost and product competitiveness in the internationally exposed sector. This, in turn, has implied attending to pent-up requirements of structural adjustment and removing supply impediments to faster growth in the private sector".[15]

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[11] McChesney, J., "Privatization: Third World Moves Slowly", Congressional Quarterly's *Editorial Research Reports*, Oct. 7, 1988, p. 495.

[12] Note that much of the intellectual inspiration of the contemporary move for privatization in USA has been derived from the public choice school. James Buchanan Produced the seminal works in this field, frequently in collaboration with Gordon Tullock and their basic conclusion is that a political system of interest-group bargaining will almost certainly result in very large inefficiencies by the society in the use of its available resources. See Buchanan J.M., and Gordon Tullock, *The Calculus to Consent: Logical Foundations of Constitutional Democracy*, University of Michigan Press, Ann Arbor, 1962.

[13] Saves, E.S., *Privatization: The Key to Better Government*, Tata McGraw-Hill Publishing Co. Ltd., New Delhi, 1987.

III. Barriers to Privatization

Inspite of the recognitioin of the general need to privatize, the programmes thus far adopted particularly in the developing countries, have often run into serious difficulties. For many of them privatization has rather been a slow and frustrating activity, "very much like Salome and her seven veils, with just enough being revealed at each drop to interest major onlookers in the electorate (and among the country's foreign creditors) in a continuation of the performance—but with enough remaining veiled to preserve the attractiveness of the political class in the seductive routines".[16] The many real barriers on way to privatization in these countries include fear of job losses and unemployment, fear of corruption, lack of financing regulatory problems, legal prohibitions, etc.[17] The functionaries of the parastatals who have the most at stake, in a way, have the most direct interest in resisting change. Bereft of job opportunities, adequate unemployment benefits, retraining, job counselling and placement assistance, no wonder that there arises a formidable phalanx of opposition to privatization in the developing world.

There are also technical issues which need to be resolved. For example, privatization raises issues of finance or what financial strategy should be adopted to accomplish a particular privatization objective? It raises questions relating to property rights and law, i.e. is the legal structure, especially as it relates to property rights, adequate to support successful privatization? Issues also arise on tax structure, particularly if the tax system encourages private equity ownership or not? Finally, of course, there are political factors which ultimately determine whether a privatization venture will at all be tried. A critical part of any privatization strategy, therefore, requires thinking through a plan that will mobilize support in favour of privatization against expected opposition from different interests groups.[18]

There are four groups in a society which, in fact, can make or break a privatization programme. They are:[19]

(a) Policitcal i.e., the excutive and legislative political leadership; (b) Public i.e., the consumers and recipients of public products and services; (c) Government employees and managers, including civil service professions, supervisors and unskilled workers who are most directly impacted by privatization; and (d) Business community, local and expatriate, who are willing and able to acquire, lease, or manage a government-owned and/or operated activity.

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[14] *Ibid.*

[15] Glade, W., "The Context of Privatization", In Glade, W., ed., *Privatization of Public Enterprises in Latin America*, ICEG, Center for US-Mexican Studies, San Francisco, California, 1991, p. 13.

[16] *Ibid.*, p. 8

[17] Poole, R., "The Political Obstacles to Privatization", in Hanke, S.H., ed., *op. cit.*

[18] Hanke, S.H., ed., *op. cit.*, Introduction, p. 4.

[19] Marston, L., "Preparing for Privatization: A Decision Makers' Checklist", in Hanke, S.H., ed., *op. cit.*, p. 68.

The key to privatization is understanding and being responsive to the problems and needs of these major interest groups.

IV. Steps Towards Privatization

As far as the privatization process is concerned, one should of course start with the feasibility study. There are certain enterprises which have no worthwhile assets and are unfeasible to sell, reprivatize, or transfer to the private sector. The studies should define and classify the enterprise. If an enterprise is considered strategic which the government will not even consider handing over to the private sector, then it should be rehabilitated. If an enterprise will never succeed, it should be liquidated and not privatized. Indeed, a serious obstacle to privatization is posed when the government wants to sell off the 'losers': the flabby, inefficient or run-down enterprises which no one wants to buy.

Assuming the sale is feasible, one must approach the problem systematically which may proceed in four phases, covering fourteen steps as shown in Table 1, and based on a decision tree as shown in Table 2.

TABLE 1: FOURTEEN STEPS TO PRIVATIZATION

Phase I: *Institutional Development*

1. Organize for Development
2. Assess political situation
3. Create private sector coalitions
4. Develop strategies and guidelines

Phase II: *Selecting Targets*

5. Policy review
6. Organization survey
7. Business evaluation
8. Strategic analysis

Phase III: *Privatization Transfer*

9. Estimate value
10. Issue conditions and solicitation for transfer
11. Evaluate and select successful bidder
12. Negotiation and execute transfer

Phase IV: *Monitoring End Results*

13. Establish regulatroy and overseeing mechanism
14. Monitor performance

Source: Lance Marston, *op. cit.*, p. 69.

TABLE 2: PRIVATIZATION DECISIONS

Are the compelling reasons for retaining the activity as a function?
Yes (retain-in-house)
↓
No
Would conversion lead to unacceptable disruption of an essential public service activity?
Yes (retain-in-house)
↓
No
Are commercial source(s) available and is private sector competition likely?
No (retain-in-house)
↓
Yes
Could service be produced and delivered by a private-sector group in a more efficient cost-effective manner?
No (retain-in-house)
↓
Yes
Prepare privatization recommendations and plan for contractual phase of privatization.

Source: Lance Marston., *op. cit.*, p. 75.

The above process depicted are only indicative and by no means prescriptive. One can also follow alternative routes, steps and methods to achieve the same privatization goals under different circumstances. Moreover, important questions yet "remain unanswered about the feasibility of large-scale privatization programs under prevailing international market conditions and their effects on income distribution and sectoral concentrations of capital in the long-term".[20] This probably asks for some caution and restraint. In Stone's words: "The market solution is solipsistic. It solves problems by denying their social and public character".[21] However, note that much controversy about privatization currently surrounds the details relating to the privatization programme, the issues primarily being on when and on what terms to privatize, not whether or even what to privatize.[22]

V. The Bangladesh Experience

Along with Chile, Bangladesh is said to be one of two "champion performers in the world of privatization or divestiture".[23] Although difficult to estimate precisely, by the end of the last decade, more public enterprises were probably divested in Bangladesh than in any other country. Such estimates may include more than one thousand industrial units besides a total of 3000–4000 small commercial training firms. Table 1 shows a phasewise divestiture of 567 relatively important industrial enterprises in the country, which has overtime led to a decline in the government ownership of industrial assets, from more than 90 percent of the immediate post-independence period to only 40 per cent.[24]

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[20] Glade, W., ed., *op. cit.*, p. 12.

[21] Stone C.N., "Whither the Welfare State: A Review", *Social Work*, Vol. 31, July–August 1986, p. 259. Of course, some would not even like to consider the notion of equity because it may blur the real issue of efficiency and competitiveness. Cf. Waters, A.R., "Privatization: A Viable Policy Option? " in *Entrepreneurship and the Privatizing of Government*, Kent C.A., Ed., Greenwood Press, Inc., Westport, CT, 1987.

[22] Glade, W., ed., *op. cit.*

[23] Berg E., "Privatization: Developing a Pragmatic Approach", *op. cit.*, Also see, Atiqur

The latest industrial policy in Bangladesh formulated by the new government which came to power in 1991 asserts that the privatization process will be strengthened by pursuing the following policies:[25]

(a) Abandoned, vested and taken-over industrial enterprises and shares and other proprietory interests will continue to be disinvested;

(b) Except industries in the reserved sector (retained from RIP), capital will continue to be withdrawn gradually from industries under corporations;

(c) If required, hundred percent shares of public enterprises will be sold;

(d) Industries in the public sector will be sold through floating of tenders;

(e) In order to ensure widest possible distribution of shares and securities among the general public, and associate them in the management, shares will be unloaded mainly through public subscriptions; and

(f) Bangladeshis working abroad will be encouraged to purchase these industrial units or shares in foreign courrencies.

By early 1992, the new government identified 42 enterprises (most of them losing concerns) for privatization on the basis of recommendation made by a Working Committee on divestment in the Ministry of Industries.[26] These are listed in Table 2 and are classified in three broad groups: (i) the first group of 8 enterprises, earlier converted into holding corporation under the 51 : 49 per cent plan of partial divestment in 1987, now aimed at the sale of the remaining 51 per cent of shares to the public: (ii) the second group of 28 enterprises to be sold in their entirety to the private sector by tender on the basis of guidelines on sale prices provided by firms of chartered accountants; and (iii) the third group of 6 enterprises to be divested partially on the holding corporation principle whereby only 49 per cent of the shares will be divested—34 per cent to be public and 15 per cent to the employees—and the shares are to be issued at par.

Rahman, "Development Strategies and Productivity in Bangladesh", BIDS, Research Report No. 41; Dhaka, and Humphrey, Clare E., *Privatization in Bangladesh: Economic Transition in a Poor Country*, Asian edition, UPL, Dhaka, 1992.

[24] Of course, part of this is explained by an autonomous growth in private sector industries.

[25] Government of Bangladesh (Ministry of Industries), *Industrial Policy-1991*, Dhaka, July 1991, p. 9.

[26] World Bank, *Bangladesh: Selected issues in External Competitiveness and Economic Efficiency*, March 16, 1992.

TABLE 3: DIVESTITURE OF INDUSTRIAL ENTERPRISES BY YEAR

	No. of units divested which were managed by management board (i.e. small units)	No. of units divested which were managed by public corporations (i.e. large units)	No. of (enemy) properties divested	Total no. of units divested
Phase-1 1972–75				
1972	—	—	12 (up to 1972)	12
1973	—	—	1	3
1974	44	—	1	45
1975	90	—	8	98
Sub-Total:	136	—	22	158
Phase-2 1976–81				
1976	3	7	12	22
1977	18	35	3	56
1978	19	36	5	60
1979	26	19	2	47
1980	10	10	3	23
1981	14	2	3	19
Sub-Total:	90	109	28	227
Phase-3 1982–89				
1982	10	6	3	19
1983	10	24	—	34
1984	1	18	—	19
1985	11	4	3	18
1986	5	1	—	6
1987	5	1	1	7
1988	1	—	1	3
1989	—	2	—	2
Sub-Total:	43	66	8	107
Total:	269	163	58	492
Jute and Textiles Mills returned to Bangladeshi former owners/ shareholders up to-date		75 (Jute 35 & Textiles 40)		
GRAND TOTAL:		238		567

Source: Ahmad, Sultan, "Trends of Privatization in the Asia-Pacific Region with Particular Reference to Bangladesh", *Asian Affairs*, No. 3, July–September 1991.

TABLE 4: BANGLADESH—LIST OF 42 PUBLIC ENTERPRISES TO BE DIVESTED

Name of enterprise	Estimated total net profit (FY87–91)[a]	Proposed froms of disposal
Group I: 100% shares (8)		
Bangladesh Steel Engineering Corporation (BSEC):		Sale of the 51% shares held by the holding Corporations
National Tubes Ltd.	12.2	
Metalex Corporation Ltd.	–43.0	
Bangladesh Chemical Industries Corporation (BCIC):		
Osmania Glass Sheet Factory	83.9	
Kohinoor Chemical Company	–43.4	
Eagle Box Carton Manufacturing Co.	0.3	
Bangladesh Sugar and Food Industries Corporation (BSFIC):		
Dhaka Vegetable Oil Industries	211.1	
Zeal-Bangla Sugar Mills	4.3	
Shyampur Sugar Mills	–15.1	
Group II: Total Sales to Private Sector (28)		
Bangladesh Steel Engineering Corporation (BSEC):		
Dhaka Steel Group of Industries[b]	–77.4	Direct tender
Bangladesh Machine Tools Factory	–459.7	Direct tender
Dhaka Diesel Plant	–111.0	Direct tender
Bangladesh Blade Factory	–20.5	Open tender
Bangladesh Cycle Industries	–57.5	Open tender
Bangladesh Chemical Industries Corp. (BCIC):		
Chittagong Chemical complex	–16.3[a]	Direct tender
Dhaka Match Factory	—	Direct tender
Ujala Match Factory	–23.0	Direct tender
North Bengal Paper Mills	–600.8	Direct tender
Karnaphuly Rayon and Chemicals	–480.1	Direct tender
Lina Industrial Enterprises	23.4	Direct tender
Khulna Hard Board Mills	10.7	Open tender
Kohinoor Battery Manufacturing Co.	–186.5	Open tender
Bangladesh Sugar and Food Industries Corporation (BSFIC):		
Sugar Mills at Thakurgaon	–150.1	Direct tender
Sugar Mills at Setabganj	–70.3	Direct tender
Sugar Mills at Rangpur	–93.2	Direct tender
Sugar Mills at Kushtia	0.0	Direct tender

Name of enterprise	Estimated total net profit (FY87–91)[a]	Proposed froms of disposal
Kaliachapara Sugar Mills	–187.2	Direct tender
Deshbandhu Sugar Mills	–103.0	Direct tender
Crew and Company	–35.7	Direct tender
Amin Agencies	–26.8	Direct tender
Can Making and Tin Printing Plant	–6.9	Direct tender
Miscellaneous:		
Dosa Extraction of Chittagong	—	Take back at direct tender
Bangladesh Oil Mills of Khulna	—	
National Ice Factory of Kishoreganj	—	
Star Roller Flour Mills of Barisal	—	
Group III: 49% Shares (6)	—	
Bangladesh Steel Engineering Corporation (BSEC):		Based on holding corporation principles
General Electric Manufacture	–121.1	
Bangladesh Chemical Industries Corp. (BCIC)		Shares to be issued at par
Sylhet Paper and Pulp Mills	10.7	
Bangladesh Insulator and Sanitary Wave Factory	111.5	
Palash Urea Fertilizer Factory	52.8	
Chatak Cement Factory	–29.6	
Bangladesh Sugar and Food Industries (BSEC):		
Panchagar Sugar Mills	–14.9	

[a] In millions of taka.

[b] Contains three enterprises.

Source: World Bank, *Bangladesh: Selected Issues in External Competitiveness and Economic Efficiency, op. cit.*

Uptill now, however, the progress with privatization in this latest round appears to be extremely slow, so slow that according to the World Bank "it will take the private sector in excess of 40 years to reach investment parity with the public sector."[27] Only 3 enterprises may, in fact, be said to have been effectively privatized by the new government by the end of April 1993, although a total of 8 enterprises were earlier partially privatized.

Moreover, there seems to be an enormous gap between policy statements and implementation. Part of the problem, of course arises because of attempts to privatize by sole reliance on bureaucrats who have an inherent and opposing interest in maintaining the status quo. There are also problems in running the divested firms, such as shortage of working capital, backlog of surplus employees and technological obsolescence. Other inadequacies include: (i) lack of a time frame to implement the programme; (ii) the selection of (mostly) losing concerns for privatization; (iii) overwhelming dependence on tender as the chief mode of the process as opposed to the capital market which is underdeveloped; and finally, (iv) the form of privatization being solely divestment or denationalisation of public enterprises, virtually ignoring all other forms including industrial deregulation.

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[27] *Ibid.*

It is probably necessary for Bangladesh to proceed more realistically towards privatization by fixing macro-privatization strategies and modalities of micro-privatization. One first prerequisite in this regard is to conduct research on privatization and related policy issues to sort out the various financial, regulatory, organizational and legal issues involved in the process. The government should also establish a privatization unit "to oversee design and guide implementation of the parallel policies and programs promoting privatization and private sector development".[28]

VI. Concluding Remarks

It must be realised that lasting success calls not only for divestment of some public enterprises, but a well integrated set of concrete proposals that ensure that the private sector can flourish. After all, privatization is only a means, not an end in itself. The end is, achieving a more varied, better balanced and more vibrant economy. Privatization should be designed to help, not hinder, this growth process. While dealing with perpetually losing industries, it may be preferable to liquidate them, not privatize.

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[28] Humphrey, C.E., *op. cit.*, p. 165

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PLANNING IN INDIA WITH REFERENCE TO INDUSTRIAL DEVELOPMENT

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Introduction

The Third World, which constitutes nearly 70% of the total world's population, subsists on only 20% of the World's income. Even this meagre income is so maldistributed internally that a bulk of their population is in abject poverty. A large majority of people who live in the Third World have little or no shelter and inadequate food suply. Their health is poor. They cannot read or write. They are mostly either underemployed or unemployed. Their prospects for better health and life are bleak.

However, the development process in Third World nations cannot be analysed realistically without considering the role of economically developed nations in either directly or indirectly promoting or retarding that development. It may be noted that our earth shrinks with the spread of modern transport and communications, thereby the future of all people on this small planet becomes increasingly interdependent: What happens to the health and economic welfare of the poor families in South Asia, Africa, the Middle East or Latin America will, in one way or another, affect the health and economic welfare of their counterparts in Europe and North America and vice versa.

Thus, the phenomenon of underdevelopment needs to be viewed in the national and international context. Economic and social forces, both internal and external, are responsible for poverty, inequality and low productivity that commonly characterize most Third World countries. The successful pursuit of economic and social development will require not only the formulation of appropriate strategies within the Third World but also a modification of the present international economic order to make it more responsive to the development needs of poor nations.

Economic growth may be defined as the rate of expansion that can lift an underdeveloped country from a near-subsistence mode of living to substantially higher levels in a comparatively short period of time, say in some decades. Economic development is generally defined to include improvements in material welfare, especially for persons with low incomes, eradication of mass poverty, changes in the composition of inputs and outputs that generally include shifts in the underlying structure of production away from agriculture towards industrial activities.

For this purpose, more than the total quantum of investment, it is the pattern of investment which is considered important for achieving the overall goals of development. Every nation should first of all fix up its overall objectives that are to be achieved in the given time period and having fixed up, start working out the appropriate development strategies. For a country like India, the principle governing this exercise should include:

(i) Guaranteed purchasing power—employment for all;

(ii) Key industries including banks to be organised as public utilities;

(iii) Ceilings on wealth;

(iv) Workers' ownership—cooperatives to be developed as a major sector of the economy including cooperative banks.

Statement of the Problem

A developing country like ours is still faced with quite a large section of population, which is not only illiterate and below poverty line, but also either unemployed, underemployed or non-employed. The main focus of Indian Planning appraisal of the Seventh Five Year Plan and the need to explore proper economic strategies for the ensuing Eighth Five Year Plan, has raised the question of recasting development strategies in right earnest. The capital-centred and urban-oriented approach has not been able to make India self-reliant or achieve removal of poverty or lesser unemployment and inequalities in the distribution of income to any significant measure all of which are the important objectives of Indian planning.

The main reason as to why a large chunk of this country's population is still suffering from a sub-standard or sub-subsistence modicum of living is that no systematic thought has been given to provide the basic consumer's essentials to the target groups. It was expected that special employment and income generation measures would serve the purpose. Poverty was never considered as primarily remediable through systematic reduction of unemployment and underemployment. Hence, scarce resources which could have been utilised for creating assets, which in turn could have secured a continuing flow of employment and reduction of poverty in a systematic manner, have had to be diverted for the creation of adhock opportunities of employment or poverty-relief measures or welfare programmes. As a matter of fa· , the major flaw in Indian planning is that a relevant production spectrum has never been designed on a long-term basis to achieve a reasonable degree of consumption equalitarianism through the choice of appropriate goods and techniques, income and wage policies, employment and manpower planning; so far, all these aspects of development strategies have been treated in isolation and not considered as a part of the total production and investment planning.

Whenever one thinks of growth and development, it is meaningful to view the process of growth over a sufficiently long period. What is created in the short run should be viewed as an initial instalment of a long-term path of development. Whether it is growth, employment and removal of poverty, all of them will have to be viewed as an essential part of the development process. For example, if one puts full employment as a short-term objective in a developing economy, it is as good as condemning it to a perpetual underdevelopment process. In the same way, if one thinks of high degree of mechanisation for the economy as a whole, it provides very little employment for the present as well as for the future because of the low rate of growth on account of the very high capital intensity per man. Under these circumstances, only the optimum technique is the proper vehicle for growth, employment and social justice, as it lies somewhere in between these two extremes. Here also, one has to make a distinction between the consumption goods sector and the heavy investment goods sector. The degree of mechanisation will have to be fairly low in the former sector when compared to the latter.

The broad objectives could be as follows:

1. There should be a proper long-term perspective planning against which Five Year and Year-wise Plans are to be formulated;
2. The basket of essential commodities required by 90% of population should be specified and spelt out.
3. The techniques of production to produce these essential commodities also are to be defined together with capital-intensity and import-component.
4. To specify whether the national goals consist of achieving the per capita income and living standards that are prevalent in the middle-developed countries such as European countries or should be content with doubling and trebling of the per capita income over a predetermined time span;
5. To find out the ways and techniques to bridge the inter-class and inter-generational gap;
6. The content of optimal manpower and educational planning which can be dovetailed into the overall long-term planning.

Development Planning in India

During the last (45) years after its political independence, India has registered impressive progress in many fields. Total foodgrains production which stood at around 50 million tonnes in 1950 has now increased to almost 190 million tonnes. There has been a phenomenal growth in India's scientific and technological fields. It is estimated that there are more than 3 million active scientists and technologists in the country today as against 0.2 million in 1950. This is in spite of the fact that there has been a large-scale "brain-drain" to Europe, USA and other countries including the Gulf countries.

It is very often expected that the fruits of "development" will percolate to the weakest sections of the population. Obviously, this effect has not taken place in

India. It is an established fact that in India the poverty ratio has no relation to per capita income level. While per capita income is rising, howsoever slowly it is, poverty ratio is more or less constant. This is because the rate of growth of income at the bottom levels of society does not change. Much of the increase in income is appropriated by the top 25% of society and very little trickles down to the bottom. It is a fact that the overall economic, agricultural, industrial and technological development is a condition necessary but not sufficient to eradicate poverty and under-nutrition. There is reason to believe that the very momentum of the development process has served to accentuate socio-economic disparities in some cases. The big challenge of development, for countries like India, which have chosen the democratic political system, lies in devising ways and means of ensuring an equitable distribution of the benefits of economic growth.

Coming to the problem of production, one is confronted with a dilemma as to what type of production is to be encouraged or discouraged in a developing country like ours where 30–40% of the country's population is still below the poverty line defined as a minimum physical subsistence. Since the national leadership is committed to the upliftment of the lower and middle strata of population, the overall production pattern and content has to be geared to that extent. Once this is agreed, suitable development strategies could be worked out.

When nearly half of the population is known to be either at the subsistence level or below the poverty line, the main problem that should engage any planner or policy-maker is how to increase the production of the basic necessities and other amenities such as food, clothing, housing, health and medical facilities, education, hygiene etc. The main problem before this country is shortage of total available capital. Here, capital should not be construed in monetary terms. It is the reproducible capital equipment including other inputs that go into production. The available capital should be employed in such a way that we get the maximum output or productivity per man, per acre of land and per unit of capital used in all lines of production. This is possible only when we choose relatively less-mechanised but improved techniques both in agricultural and industrial sectors of production. Incidentally, this type of production strategy also ensures a high rate of employment to the eligible unemployed, both skilled and unskilled personnel.

It is normally expected that as the per capita incomes rise, share of the industrial sector in the total ouput also rises unless the country concerned has an excessively high comparative advantage in the production of primary products for exportation. An increasing share of the industrial sector is generally explained in terms of the operation of Engel's Law. As far as India is concerned, its economy seems to be characterised by self-perpetuating inequalities. As regards its industrial production, market signals seem to be in favour of the production of the non-essential types of goods. This may be due to the initial inequality in income distribution as well as the absence of rigorous checks on consumption expenditures. Added to this pattern of production, most of these non-essential goods are produced by means of techniques having relatively high degree of mechanisation either because of misdirected research or because of emulation of developed countries. Of course, the profitability rate is relatively high when compared to the production of essential goods. In an economy, where the poor have been virtually reduced to the status of spectators, they merely go on watching the rich, who indulge in conspicuous consumption. This state of affairs is known as Glass Curtain Economy. In this type of economy, the glass curtain ensures physical inaccessibility to the members living outside (people who do not possess enough purchasing power) though they could see all the modern gadgetry exhibited outside the show rooms. All this could be attributed to the wrong choice of goods and techniques adopted by the Indian planners.

Industrial Development in India

Some economists argue that the development efforts do not mean that the rich should save more. On the other hand, they feel that the richer sections should be compelled to consume less. This goal could be achieved by adopting a policy-mix of severe restraints both on the production and consumption of inessential or non-essential goods. It is a fact that spectacular progress has been made in India in the production of some industrial goods such as air-conditioners, refrigerators, radios, TVs, VCRs, fans, sewing machines, scooters, automobiles, electric lamps, synthetic yarn and clothes, readymade garments, etc. All these goods are consumed not only by the upper class people but to some extent by the middle income groups also. However, items of mass consumption such as cotton piece-goods, sugar, vegetable oils, soaps, public transport etc., did not show any significant rates of expansion. On this basis, one can come to the conclusion that there has been some percolation of plan benefits to the "Middle income group" and the waiting period for the "Lower income groups" is very much delayed.

Some people call this type of growth as "parasitic growth". According to Bagchi, the lop-sided development is to be traced to the overall policy of the public sector providing infrastructural facilities to the private sector at subsidised rates. This policy, according to him, has provided ready inputs for pseudo-industrialisation. Other studies have recently brought out the industrial paradox that has emerged in the Indian economy. It has been worked out that 40–50% of the total capital is being directed towards the production of non-essentials. This has been consistently higher than the capital stock utilised for the production of essentials. Further, it has been proved that the capital (investment) devoted for its own reproduction seems to be the residue after meeting the requirements of the preferential creditors (i.e., non-essentials).

All this shows that India's industrial development has not proceeded on the proper lines. Whatever development has taken place, a predominantly larger proportion of industrial output has benefitted only the relatively richer sections of the society. This being the overall situation, the present New Economic Policy with all its liberal policies may still accentuate the differences between various sections of the society.

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PRIVATISATION: INDIAN VIS-A-VIS GLOBAL SCENARIO*

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I. Introduction

The economic policy initiatives taken by the Central Government in India from 1985, with the leadership of Late Shri Rajiv Gandhi, are labelled as "New Economic Policy" or "New Economic Order" (NEO). Though there has been no official resolution or statement expressing explicitly what NEO is intended to achieve, and how, it refers to a set of certain policy changes, procedures, modus operandi and rationale with particular reference to fiscal, monetary, trade and industrial policies. NEO has found expression in phrases like 'Privatisation', 'Marketisation', 'Decontrol', 'Liberalisation', etc.

The State was assigned increasingly greater role in economic sphere of India between the period 1950 to mid seventies. A U-turn in terms of economic thought and events has been experienced by Indian economy since mid-seventies. NEO, it has been observed, has been an outcome of deliberations and recommendations of various earlier committees. These committees reflected general consensus arrived at as a result of prolonged national experience of planning, as well as regulatory and control measures experimented with for this purpose.

Though the State played a dominant role in the industrialisation and economic development of India since 1950, the country performed very poorly in terms of growth even after 3½ decades of planned efforts. Moreover, low growth performance was accompanied by growth of corruption, bribery, lack of work culture, inertia, and sloth. Hence, there was a general consensus that freeing the economy from long persistent and widely stretched economic controls would lead to substantial improvement in economic field. Consequently, India has witnessed since mid eighties a veritable seachange in economic perception and policy in almost all the fields, as a result of changes taking place in objective economic phenomena and ideology (13, 1991). However, labelling of NEO by any single phrase mentioned above does not do full justice to the varied changes that have been taking place in economic policies for India. Hence, there is need to define the terms Privatisation, and others, mentioned above.

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II. Definition and Concept of Privatisation

"Privatisation", a newly coined word, and a concept of recent origin, is not found in ususal dictionaries. Privatisation, though has universal appeal, differs across space and time, and is likely to undergo changes, both conceptually and in practice. The process of privatisation, its mechanism and implications can be understood well, only if it is defined properly. Hence, we discuss below five major definitions of privatisation. (There are around fifteen definitions of privatisation used by different experts).

(a) *Divestiture*: This implies the sale of whole of its holdings of equity shares by the State to private share holders. However, in practice, the sale may be partial (minority or majority sale) and may be made to private individuals, financial or other institutions, etc., which may be owned by the State. The international discussion of privatisation boils down to this process.

(b) *Denationalisation*: This involves the change of ownership of an enterprise from the State to a private sector ownership, i.e., a conversion of public sector enterprise into a private sector one. It therefore includes, the change of ownership control and management.

(c) *Expansion of Private Sector*: This includes any process by which private sector is assigned greater role in economic activities of the country. Hence, it implies freezing or slowing down of production of goods and services in public sector. It therefore involves liberalisation or de-regulation of private sector via fiscal, monetary and other non-discretionary measures, and removal of various types of controls (on production, distribution, prices of goods, licenses etc. in private sector).

(d) *Transfer or Management and Control of State Owned Enterprises (SOEs) to Private Sector Individuals or Agencies*: This refers to associating persons with experience in management of private sector company with others on the board of directors of public sector companies or at lower levels. However, mere transfer of management and control, without any share of profits to private individuals or agencies would not mean privatisation, because, such managers would then remain only as employees, if not bureaucrats.

(e) *Liberalisation*: This involves fewer controls and regulations by the State in economic fields, e.g., slowing or stopping of new controls and regulations. It involves delicensing of industries, broadbanding of industrial groups, re-endorsement of capacities; production according to economies of scale, abondoining or postponing proposals to start new SOE's; etc. According to Pandse (15, 1985) "Any Process which reduces the involvement of the State or the Public Sector in the economic activities of the nation is a Privatisation Process".

Prof. Brahmanand (4, 1986) refers to NEO as "Marketisation", which, according to him, "Implies belief in the enormous information, initiative, improvisation potential hidden in an economy of millions of producers, firms households, organisations and institutions . . . . The government becomes a portion of the Market, trying to overcome its failures, covering its gaps and restoring equity. But the Government lives with and within the Market". However, NEO, according to Prof. Brahmanand neither refers to policies prescribed by Adam Smith nor by Friedman. It has macro policies which Smith did not contemplate and it contains a powerful component of plan with a goal of social justice built into it. A mixed economy like India makes its own amalgam for achieving macro goals of growth, equity, stability, poverty eradication, etc., in an environment of micro freedom at household and firm levels.

III. Factors Leading to Global Move Towards Privatisation

Following can be pointed out to be major factors inducing privatisation all over the world.

(a) Privatisation, according to Pendse is a "Specific Medicine" to cure "a specific illness ailment" of the economy. A number of economic ills develop as time passes, especially in case of developing countries. These may be as follows:

(i) Overall expanding budgetary deficit, inflation and slow growth:.
(ii) High deficit on revenue accounts.
(iii) Capital surplus budgets involving increased borrowings to meet expenditures.
(iv) Increasing non-developmental and non-plan expenditure and becoming irreversible, causing cuts in plan targets.
(v) Dismal financial performance of SOE's.
(vi) Increasing incremental capital output ratio, reflective of low productivity of capital, etc.

Privatisation process tries to apply proper dose of specific medicine to specific ill and aims at attainment of speedy growth, dynamism, equity, improved efficiency through greater competition, greater degree of freedom to private sector in the pursuit of their economic activities.

(b) According to Elliot Berg (5, 1987) privatisation is adopted so that new ways of mobilising resources and using the existing resources more efficiently can be found out. This has been the major cause for privatisation in developed countries like U.K. and U.S.A.

(c) Privatisation move is considered to be a reaction against the world-wide growth in the size of governments over last $2\frac{1}{2}$ decades.

(d) Moreover, in less developed and poor countries' (LDC's), growth of public sector was characterized by the growth of "Parastatal Sector", i.e., by increased number of SOEs. Moreover, share of SOEs in Gross Domestic Product (GDP), Value Added in Manufacturing Sector and Capital Invested, went on increasing in majority of the countries between 1960 and 1970. The SOEs were allowed to grow so fast because these were expected to help poor countries in modernisation, in generation of resources for investment, and in leading the economy to self-sufficiency and self-reliance by remaining at the forefront of industrialisation. However, it was a world wide experience that parastatals could not achieve these goals and had been a drain on the national budget. Hence, a global move towards privatisation.

IV. Privatisation—A Global Phenomenon

The process of privatisation has cut accross all ideologies, economic systems and geographical differences all over the world. It has been followed by industrially developed countries, like U.K. U.S.A. Japan, U.S.S.R. and also by less developed countries like India, Pakistan, Bangladesh, China etc. We discuss below the experiences of these countries briefly.

(A) *Privatisation in Developed Capitalist Countries*

(a) *Japan*: Privatisation process is perhaps oldest in Japan which began divestiture of many SOEs between 1874 to 1896, on account of indulging continuous losses and being a drain on government treasury. Later on, Japan National Railways, a loss making unit was also privatised. Around 1983, a Japanese State Monopoly of Tobacco and Cigarrettes, a highly profitable SOE was recommended for divestiture.

(b) *U.K.*: Privatisation of big British Government enterprises not only caught world-wide attention, but also gave an excellent political strategy for Mrs. Margaret Thatcher. Privatisation of British Telecom resulted in world's largest single share floatation valued at over Rs. 5000 crores, making 95% of its employees (2,20,000 individuals) the shareholders of the company, against the advice of their Trade Unions. Other profit making SOEs were also privatised over a period of time. By 1987, nearly $ 21 billion were raised by U.K. through the process of divestiture (14, 1988).

(c) *Other European Countries*: France, West Germany, Spain etc. also followed the suit. Comprehensive divestiture, carried over a longer duration was the major process of privatisation in all Western European Countries.

(d) *U.S.A.*: Deregulation was the major force of privatisation in U.S.A. (18, 1987), because, U.S.A. did not have much of manufacturing undertaken i.. the public sector. There has been deregulation of public activities like banks, airlines, etc. Many activities like street lighting cleaning, schooling, health etc. have been privatised on account of cut in the Federal grants to State and Local Governments. Contracting out of off-loading is the major form of privatisation in U.S.A.

(B) *Privatisation in Socialist Countries*

(a) *U.S.S.R.*: Wave of privatisation has not spared centrally planned economies with 100% control and ownership over factors of production and property. (e.g., U.S.S.R., China, Hungary, etc.). It has come in the form of "individualization" of economic activities. permitting individual ownership and control. Glasnost and Perestroika, implying openness and reconstruction (ongoing process of economic reforms) respectively are the popular words talked about currently in U.S.S.R.

Taxis, small repair shops, and restaurants can now be run privately. A family or a group can register as co-operative and run private business in carpentry, painting, clothes, repairs etc. In 1988, thousands of SOE's accounting for over 60% of industrial output were to go over to full profit and loss accounting, i.e., to complete financial autonomy and responsibility. Farmers are now allowed to sell in free market 70% of the produce in excess of a fixed produce to be given to the government (8, 1987).

The change over in economic policies since last few years had led to grave economic crisis in U.S.S.R. The annual growth rate in GDP during 1989 was around minus 6–7 per cent. The economy has been facing acute shortage of all types of commodities and, according to some unofficial authorities, the rate of inflation stood around 5 to 7 per cent per month, or 60–80 per cent annually. Having fully understood and experienced the pains of transformation process, Mikhail Gorbachov launched the "500-day Shatalin Plan" for accelerated switching of the Soviet economy to market principles. As Bhaumic (3, 1990) explains, the programme is divided into four phases. The preparatory period of 100 days will be devoted to the creation of legal framework for privatisation and its actual commencement. The second phase will be of 150 days and will be devoted to liberalisation of prices, introduction of tax system and stepping up of denationalisation of small and medium enterprises. The third phase of 150 days will witness structural reforms while the fourth phase of 100 days will aim at attempting stabilisation and consolidation. Thus, U.S.S.R. has decided to face squarely the challenges of transition to market economy in a short span of around $16\frac{1}{2}$ months. The failure of the coup against president Mikhail Gorbachov in July, 1991, was a proof of great revolution taking place in U.S.S.R. via perestroika and glasnost.

(b) *China*: Privatisation has taken following forms in Mainland Communist China. Individual farmers are allowed to keep and sell a portion of crop, once government procurement was fulfilled. People are allowed to take up private jobs to supplement their incomes. High street shops and small industries with profits less than 20,000 yuan (Rs. 10 lakhs apporoximately) are considered by Shanghai for selling. Foreign private enterprises are to be allowed to start several industrial and commercial units in many parts of China. Around 30 State owned Commercial Enterprises in Shanghai alone have been leased out to individuals, while 200 others transferred to collective ownership. However, Deng Xiaoping insisted that he intended to develop socialism and not capitalism. The policies followed in China have resulted into great inflow of foreign investment in their industries, leading to speedy industrialisation and growth. Thus, reforms in China provided more autonomy to enterprisers, reduced bureaucratic hands in industry and encouraged greater freedom to workers for raising their productivity.

(C) *Privatisation in Less Developed Countries*

Privatisation in these countries has been a mixture of various measures mentioned in (II) above.

(a) *Asia*: There were around 250 cases of divestiture in Asian countries by the end of 1985.

(i) *Singapore* had it through sales of equity shares of Singapore Airlines in private markets.

(ii) *Malayasia* had it through sales of equity shares of Telecommunications.

(iii) *Bangladesh* adopted a policy of reprivatisation or denationalisation of earlier nationalised private companies in jute textiles, banking, insurance and other industries in 1982, because of big losses suffered on account of shortage of technical and trained personnel. The government offered to the previous owners the facility to re-purchase these units as the owners lacked financial capacity to repurchase. This disinvestment policy brought big funds to government treasury and also led to substantial reduction in government burden on account of payment of subsidies to these units.

(iv) *Pakistan*: Through the Budget of 1985, Pakistan's Finance Minister announced the disposal of equity shares of SOEs in basic and heavy industries to private sector, and, to foreign investors too. The new government has announced to open up its economy in all fields. Hence, various controls on prices, production etc. and on internal and external trade are removed.

(b) *Africa and Latin America*: There were around 30 cases of divestiture of SOEs in Africa and 165 in Latin America by 1985 (including Chile).

V. Theoretical Justificatioins for Privatisation

(1) Privatisation leads to wider share ownership, leading to equity.

(2) It introduces an element of competition and leads to improved efficiency and productivity.

(3) It brings change in relative importance of private and public sectors.

(4) It leads to generation of resources by bringing improvement in the performance of erstwhile SOEs.

(5) By applying the Theory of Comparative Cost Advantage or Specialization, privatisation leaves better trained personnel for government administration and professional managers for industry and thus leads to improvement in the efficiency of both the government and the industry.

(6) It is likely to reduce the far too-common political meddling in the affairs of the SOEs.

VI. Privatisation in Indian Industries

Though slow and gradual in its earlier period, privatisation in India has been accentuated since 1985 and has received further momentum through New Industrial Policy (NIP) of 1991. It exists in following forms in India.

(A) *Extension of Private Sector*

This has come through the Increased Share of Private Sector in investment and savings etc. as shown below.

(i) Private sector's share in investment which was around 36.1% of total IVth Plan outlay increased to 48.2% of total VIIth Plan outlay (7, 1987), indicating wider scope for private sector activities between 1979 to 1985.

(ii) Moreover, for the first time since planning, the private sector was assigned slightly less than 50% share in plan outlay in VIIth Plan.

(iii) Share of public sector in intended and on going activity in mining and manufacturing has been declining from 76.6% in 1976 to 52.9% in July 1986, leaving larger space for private sector activities in these areas.

(iv) Share of private sector in total savings though declined form 84% in Ist Plan to 76% in IIIrd Plan, it was raised again to 83% in VIth Plan period (1980–85).

(v) Private sector savings as proportion of GDP (at market prices) increased from 8.7% in Ist Plan to 18.8% in VIth Plan.

(B) *Liberalisation of Indian Industries*

(a) *Liberalisation of Industries Specified in Industrial Policy Resolution (IPR) of 1956*

IPR 1956 divided the Indian industries in 3 parts and assigned very crucial and dominant role to public sector in speedy industrialisation of the country. Following liberalisation measures have been taken since 1985 (6, 1986) till date (9, 1991). Industries belonging to Schedule A were exclusively Central Government Monopolies and increased in number from 4 to 17 during the period 1956 to 1985. Even though IPR 1956 reads the same today, the 1985 to 1991 Industrial policy changes as shown below show a tilt in favour of private sector by gradually opening up these reserved industries to private sector and reducing their number from Seventeen to Eight industries in 1991. Following areas were opened up for private sector since 1985.

(i) *Power Sector:* Generation and distribution of electricity is opened up for private sector and Bombay Suburban Electric Supply's proposal for setting up 500 MW Thermal Power Station has already been cleared up by Central Government. Other 3–4 proposals for setting up captive power plants are under consideration. Moreover, installation of power stations on co-operative basis by industrial associations (Orissa and U.P.) have been cleared up. Madras based industrialists like Kothari, Ashokleylands, Best and Cromptons etc. are considering to have a joint project. Private sector has also agreed to have coal based thermal power plants without the help of banks and financial institutions if government guarantees supply of coal with low ash content, or import of coal. Private companies willing to enter power sector will have to ensure that atleast 60% of investment came from sources other than Financial Institutions. The recent power policy, announced on April 17, 1990, reiterates opening up of power sector generation and distribution to private companies, permitting debt-equity ratio upto 4 to 1, and raising prescribed rate of return from existing 12% to 15% allowing private sector to operate as an independent generating company (21, 1990). Moreover the Industrial Policy Statement of 1991 (IPS 1991) provides for foreign equity participation upto of 100% if power plants are set up by foreign companies.

(ii) *Construction of Roads*: Private sector to be encouraged in construction of roads and bridges and is also to be allowed to impose and collect toll charges, e.g., *Bridge on Zuari River* at Goa, Private party on the basis of tender has been permitted to collect toll for 3 years, and is allowed to keep revenue in excess of fixed amount agreed to be paid to the government. The expenses of toll collection are to be borne by the party.

(iii) *Air Transport:* Private sector is permitted to start Air Bus services of 10 seater already imported, or, 19 seater Indian made air crafts. Import of air craft, however, is not permitted.

(iv) *Railways*: A greater role to private sector has been envisaged in 15-year Railway Corporate Plan, private sector is encouraged for setting up ancillary units for supplying equipment currently manufactured by the Railways. Moreover, private sector services in wagon leasing, catering, private investment in inland container depots and transit accommodation facilities etc. are encouraged.

(v) *Telecommunications*: Cooperation of private sector in manufacturing of switching and transmission equipment for communication sector with at least 51% share being held by the Centre/State governments is sought. Private sector may also be permitted to produce telecommunication equipment (e.g., telephone instruments etc.) at subscriber's premises. Private sector has been allowed to manufacture 46 lakh telephone instruments annually, i.e., 49% of total licensed capacity for these.

(vi) *Oil Exploration and Petroleum Refining*: ONGC and Oil India have invited private bids for oil drilling on contract basis, and private sector is also invited to set up refineries with government help (Assam) or jointly with the State (at Mangalore and Karnal), e.g., Tata—Indian Oil Venture for the Karnal Refinery and Birla—JOC venture at Mangalore Refinery.

(vii) *Low Power T.V. Terminal*: Cooperatives of private sector will be allowed to put up T.V. Terminals, provided these are handed over to government after they come into operation.

(vii) *Container Terminals and Ports*: Private funds and foreign capital is to be encouraged for their development and setting up.

(ix) *Defense*: A number of items of defense production including caps, tents, winter coats, etc. had been off-loaded to private sector.

By IPS 1991, around three–fourth of industrial activities are now made available to private sector by reducing the number of resrved industries for public sector to eight. The industries like arms and amunition, atomic energy, rail transport, mining of coal, minerals, mineral oils, etc. involving strategic areas and security only are reserved for public sector.

(b) *Liberalisation Via De-regulation and Delicensing etc.*

(i) *Delicensing of Industries*: Initially 16 industries/ groups were taken out of the purview of Industrial Licensing provisions of Industrial (Development and Regulation) Act 1951 in 1975. The number was extended to 25 broad categories of industries in March 1985, and to 82 by 1986. It is however observed, that, 16 out of these 25 industries/ groups were already delicensed in 1975. Out of the remaining, some (e.g. ceramics, cycle parts, etc.) were reserved for small scale sector, and for some, liberal licensing policy already existed (e.g. equipment for exploitation of alternative sources of energy etc.) It is hoped that delicensing will enthuse competition and will lead to better quality, lower prices and efficiency, and better utilization of excess capacities. However it was not to be applied to MRTP and FERA companies. Bringing some of the highly regulated industries like steel structurals, electronic equipment, industrial sewing machines etc., under delicensing scheme implies that the impact of the policy would definitely be greatly felt. Moreover 22 industries were opened up for MRTP and FERA companies subject to the condition that these units were opened up in backward areas. The then Finance Minister Mr. N.D. Tiwari announced on June 3, 1988, further liberalisation of Indian Industries by reducing the number of industries requiring licence from 56 to 26. Moreover, Non-MRTP and Non-FERA Companies were allowed to raise investment upto Rs. 50 crores if a units was set up in Centrally declared backward area, or, upto Rs. 15 crores if established in areas near Centrally announced 21 cities.

The 1990 industrial policy was a step ahead in the process of liberalisation, especially in terms of raising investment limit (from Rs. 35 lakhs to Rs. 60 lakhs in Plant and Machinery) for Small Scale Industries and for ancillary units (from Rs. 45 lakhs to Rs. 75 lakhs). Moreover, small-scale units which are able to export atleast 30% of their annual production by the third year were allowed to raise their investment upto Rs. 75 lakhs. As regards delicensing, all new units with an investment of Rs. 25 crores in fixed assets in non-backward areas and Rs. 75 crores in centrally declared backward areas were exempted from the requirement of obtaining licence/registration (21, 1990). Dr. Manmohan Singh, our new Finance Minister, has recently assured to continue rigourously the policy of liberalisation, after July, 1991, with a major thrust on decontrol, delicensing, increased competition, encouragement to foreign investment and technical know-how, etc. Accordingly, Government intends to open up the economy for direct foreign investors as well as multinationals who alone are supposed to possess latest technology which India needs for modernisation. The finance minister has emphasized that to make India a "Vibrant, Modern and Internationally Competitive Economy", a fresh look at the provisions of Foreign Exchange Regulation ACT (FERA) will be taken, and all the controls coming in way of fulfillment of these objectives would be removed. Thus, India intends to speed up the pace of liberalisation and privatisation from July, 1991. Following measures are taken via Industrial Policy Statement 1991 (IPS 1991). As per IPS 1991 (9, 1991), industrial licensing is abolished for all industries except 18 industries specified in Annexure II attached to IPS 1991. Licensing to these 18 industries is made compulsory on account of security and strategic concerns, social reasons, safety related issues, over riding environmental issues, production of commodities of hazardous nature or elitist consumption. These 18 industries include coal, petroleum sugar, cigaretts, hazardous chemicals, luxury items like cars, TVs, VCRs, refrigerators, washing machines etc.

Moreover, exemption is given to all substantial expansion of existing units. Because of delicensing, around $\frac{4}{5}$th of Indian industries have become completely free for entry of private sector. However, reservations for small Scale Industries continue as earlier.

IPS 1991 has also removed stringent import controls through automatic clerance for imports of foreign goods if (i) foreign equity ensures imports of foreign goods, and (ii) if CIF (cost, insurance, freight) value of imported capital goods required is 25% of total value (net of taxes) of plant and equipment upto a maximum of Rs. 2 crores (to be implemented from April, 1992 on account of shortage of foreign exchange). In all other cases clearance from Secretariat of Industrial Approvals in the Department of Industrial Development is necessary and will be according to availability of foreign exchange resources.

The IPS 1991 has also liberalised the locational controls in cases of industries other than 18 mentioned above. Accordingly industrial approvals from Central government are not required in locations other than cities having more than one million population, for industries other than those of non-polluting nature (like electronics, computers, etc.) located outside 25 kms. of the peripherals of cities having population over 1 million. Industrial location will be regulated by zoning and Land Use Regulation and Environmental Legislation. For regeneration of industrial activities, a flexible locational policy will be adopted for cities having population greater than one million. Dispersal of industries in rural and backward areas will be encouraged through incentives and investment in infrastructure.

(ii) *Broad-Bending of Industrial Groups*: By 1986 around 29 specified industrial (16 in 1983) groups were allowed to undertake diversificatioin for achieving fuller utilization of capacities. It was permitted within the subject-categories indicated against each industry. Around 20 MRTP and 35 non-MRTP companies have availed of this facility by now. The major industries include automobiles, industrial machinery, synthetic yarn and fabrics. By march 1990, around 45 items were brought under the scheme of broad banding. Above two facilities were, however, subject to following conditions.

(a) Articles for manufacture are not reserved for small scale sector.

(b) Imports of raw materials, components or capital goods are not involved in manufacturing.

(c) The unit did not fall within the purview of MRTP Act of 1969, or, FERA Act of 1973.

(d) The unit is not located or proposed to be located within the standard urban limits of city with population of 10 lakhs or within the municipal limits of a city with population of more than 5 lakhs. The IPS 1991 provides broad banding facility with respect to any article within existing investment. This will enable fuller utilization of existing clandestine capacities and will make them legal.

(iii) *Re-endrosement of Capacities*: In order to achieve better economies of scale, units were allowed in 1966 to increase production upto 25% of licensed capacity, if, it did not involve additional plant machinery, foreign exchange and demand for scarce raw materials, and if, item is not reserved for SSI. Later on in 1975, non-MRTP and non-FERA as well as MRTP and FERA companies were allowed to utilise their installed capacities without limit, even though it was in excess of licensed capacity, subject to above conditions.

Moreover, 15 specified engineering industries, if fulfilled above conditions were granted increase in their capacity at the rate of 5% per annum and upto the limit of 25% in a plan period, which was in excess of 25% mentioned above. The number was extended to 19 broad industrial groups in 1979, to which 45 new industries were added later on. Expansion of these did not require a licence.

By end of 1980, units producing items of mass consumption were allowed to claim their de-facto (existing) capacity as authorised capacity by forwarding applications before 1980. Further, liberalisation through re-endorsement of capacity with reference to the best production achieved during any of the previous 5 years, $\frac{1}{3}$rd of this was permitted, provided it is more than licensed capacity plus 25%. The scheme was extended in January 1986 to all licensed units having achieved 80% of their licensed capacity during any of the previous five years preceding 31st March 1985. The scheme was extended to any industrial unit and automatic re-endorsement was permitted at the maximum production achieved by the unit between 1st April, 1988 and 31st March, 1990. The scheme did not apply to items reserved for small scale sector. Additional investment was not to exceed 10% of the book value of existing capacity. MRTP and FERA companies could avail of this facility and locational restrictions do not apply to this scheme. Around 26 industries can now avail of this scheme.

(iv) *Capacity upto Economic Scale of Production*: Heavy stress on regional dispersion of industries, increase in employment and the prevention of concentration along with new technologies resulted into uneconomic sizes of various units. Hence, steps were taken so that fuller use and higher production of installed capacities without proper permission could be made. These were not to be applied under conditions mentioned for above measures. Around 65 industries were initially allowed to expand their capacities upto economic scales and the benefit is also now extended to MRTP companies (for industries included in Appendix-I). By March, 1990, there were around 188 industries for which automatic expantion was permitted.

(v) *Other measures*: Following other measures have been taken to liberalise Indian industries:

(a) *Amendments in MRTP Act 1969*: (Monopolies and Restrictive Trade Practices Act 1969) (i) The plan objectives of growth, expansion and modernisation were to be attained through the removal of impediments to growth and increased threshold limits of assets for dominant undertakings (from Rs. 1 crore in 1969 to Rs. 3 crores in 1985–86 and to no limit in 1991) and monopoly units (from Rs. 20 crores in 1969 to Rs. 100 crores in 1985–86 and no limit in 1991).

Moreover IPS 1991 eliminates the proviso of prior approval of central government for new units, expansion of existing units, amalgamations, takeovers, and appointments of directors under certain circumstances. Newly constituted MRTP Commission will be provided more teeth to initiate investigations, Suo Moto (on its own) or a complaint from consumers about restrictive and unfair trade practices. These measures are expected to improve economies of scale and increase organisational efficiency via empowering MRTP commission with punitive and compensatory measures against those who restrict competition and indulge into unfair trade practices. Consumers, too, will benefit due to low competitive prices and the due regard and weightage given to their complaints. However removal of threshold limit of assets is likely to affect adversely the objective of prevention of concentration and economic power. Around 27 items in 1985 and additional 24 items in 1987 went exempted from the purview of the MRTP ACT taking one third of MRTP units eligible for de registration.

(b) *Foreign Investment and Foreign Technology Agreements: It* was first time in 1973 that a number of concessions were given to foreign companies which were permitted to undertake investment in 19 industries strategic to economic development.

According to IPS 1980, around 34 industries in private sector were to be provided assistance on the basis of their performance for increasing their production capacity, for induction of advanced foreign technology, modernisation, transfer of technical know how, etc.

The scheme for Technical Development Fund (TDF) was introduced in 1976 to encourage upgradation and modernisation of technology. The ceiling for import of technology was raised to a foreign exchange equivalent to Rs. 3 crores per unit per financial year.

The Industrial Policy of 1990 encouraged transfer of technology by permitting the entrepreneur to make agreement with foreign collaborator, without obtaining any clearance from the Government if the royalty payment did not exceed 5% on domestic sales and 8% on exports. However, Government Clearance was necessary if lumpsum payment was involved in the import of technology and the decision on proposal was to be intimated to the entrepreneur within a period of 30 days.

In order to attract effective inflow of technology, investment upto 40% of equity was permitted on automatic basis, with the condition that landed value of imported capital goods should not exceed 30% of value of plant and machinery.

The IPS 1991 has, for the first time, broken the FERA 1973 restriction of 40% foreign equity participation in Indian Industries and has raised it to 51% in 34 high priority industries mentioned in Annexure III attached to it. If foreign equity is brought in imported capital goods, then, no prior clearance was to be obtained from the government, otherwise it is needed. Moreover, companies with foreign equity participation upto 51% are to be encouraged to act as Trading Houses primarily engaged in export business. This will lead to intensive and highly professional marketing activities. A special empowered Board to negotiate with a number of international firms and for approving direct foreign investment in select areas will be constituted. Foreign equity proposals need not necessarily be accompanied by foreign technology agreements. Considering Commercial technological relationship between buyers and suppliers, automatic approval of foreign technology agreements is granted in 34 high priority industries (Annexure III to IPS 1991) upto a lumpsum payment of one crore of rupees, 5% royalty for domestic sales, 8% for exports, subject to a total payment of 8% of sales over 10 years' period from the date of agreement or 7 years from the commencement of production. These measures are expected to bring in foreign capital inflow, not in the immediate future, but in the long run. Doing away with procedural delays will save on time and project costs, resulting in better utilization of scarce resources and increased efficiently and productivity.

(c) *Public Sector Policy:* Due to the strategic role assigned to the public sector by IPR 1956, it has reached commanding heights in India. It has increased in terms of number as well as size. There were only 5 Central Public Sector Units (PSUS) with the investment of Rs. 29 crores in 1951, while their number has increased to 248 with the investment of Rs. 1,03,000 crores in 1990. The major basic inputs like crude petroleum, lignite, copper, lead, coal (98% production) etc. are produced to the tune of 100% by public sector while 78% of steel ingots and saleable steels and 45% of fertilizer output is produced in this sector. Inspite of this, its performance has been extremely poor. There has been a dilution of the original concept of public sector units as a large number of private sick units are nationalised (and these account for one-third of total losses incurred by Central Public Enterprises). Moreover, PSUs have also entered into the production of consumer goods and service sector. Hence, the need to improve the efficiency of PSUs was emphasized in industrial policy via granting more autonomy to the managers since 1980.

The IPS 1991 has reduced the number of industries reserved for Public Sector to eight, with a qualification that there will be no bar for opening up for private sector selective areas of exclusivity for public sector. Similarly, the latter may enter private sector if the need arises.

Moreover, there will be a review of investment portfolios under public sector, PSUs will be granted greater professionality autonomy and accountability through MOU (Memoranda of understanding) in priority areas. Sick PSUs will be referred to BTFR (Board for Industrial and Financial Reconstruction) for formulation, rehabilitation etc. Workers are to be protected from retrenchment caused due to changing conditions via modernisation through the creation of social security mechanism. Finally, in order to raise resources and to have wide public participation, 20% of shares of select profitable PSUs will be sold to mutual funds, financial institutions, general public and workers.

All these measures are expected to weed out sick PSUs via closure, liquidation, rehabilitation, etc. which will improve their efficiency. Principles of marketisation will be made applicable via stock exchange through sale of 20% equity, thus, furthering their efficiency. However, such a small proportion of divestiture implies continuation of government control on PSUs and may not therefore enthuse the public to invest. It will also lead to crowding out of private sector from their only source of funds, the capital market.

(C) *Transfer of Management and Control of SOEs to Private Sector Individuals or Agencies*

India has taken steps in this direction by initially appointing Ratan Tata as a Chairman of Air India and Rahul Bajaj as that of Indian Airlines in 1985. The Policy is followed even today.

(D) *Divestiture and Denationalisation:*

This has been recently introduced in privatisation process of Indian Industry, and the author has discussed in detail about their scope in India in her article published in AJESS (17, 1987). Recently, there took place privatisation of the U.P. State Cement Corporation (UPSCC) in U.P. which included 3 Cement Factories. These units were sold by the U.P. Government to Dalmia Group of Companies. This resulted in Protest, dharanas, strike by large number of workers. This resulted in lot of socio-economic and political upheaval in U.P. causing strong opposition of privatisation process by Trade Unions and other political parties. Obviously, it warns us that hasty move in divesting PSUs, without taking into confidence the

Trade Unions and Workers, may result in the reversal of the process. Hence, IPS 1991 provides for both compensation package to retrenched workers and re-training them along with the social security mechanism. Moreover it seeks workers' participation in equity as well as management through formation of workers cooperatives. Thus IPS 1991 is considered to be labour friendly policy.

VII. Conclusion

Having examined the policy of liberalisation followed by Indian Government since mid seventies, following implications are derived.

Firstly, due to end of licence permit and Babu raj, reduction in number of industries reserved for public sector (from 17 to 9 industries), and through amendments in MRTP ACT, allocative and organisational efficiency will improve through encouraging competition, by getting relief from delays and wastages causing cost escalations, and via free entry, etc. Principle of consumers's sovereignity will be ushered as sellers' markets will be replaced by buyers' markets through special powers given to MRTP Commission. Broadbanding and re-endorsement of capacity will lead to diversification and fuller utilization of existing clandestine capacities.

Measures related to foreign investment and foreign technology agreements will cause reversal of flight of capital towards India due to controlling interests through 51% foreign equity participation, decontrol, relaxatioin in royalty payments and large domestic markets. Additional inputs in the form of foreign investment, technology, marketing and managerial skills, etc., being more productive will lead to better utilization of resources and increased productivity. However due to infrastructural hurdles global shortage of savings and limited areas being opened up for foreign investors, immediate inflow of foreign investment may not be possible.

Public sector reforms may help in improvement of efficiently through closure, liquidation or rehabilitation of sick units and sale of 20% equity, making public sector liable for principle of marketisation. However competition, technological upgradation, weeding out of sick units etc. is likely to result in increased unemployment and balancing of demand for and supply of new jobs. This needs that the pace of industrialization be accelerated with modernisation so that the supply of and demand for the trained and retained labour is balanced.

Finally it is feared that the total removal of MRTP threshhold limit of assets may result in concentration of economic power and competition may adversely affect the Small Scale Industries.

In short, the impact of increased competition, domestically and from abroad, may result in more firms to become sick and fail, but, the measures do not provide the freedom of exit to these. These measure are likely to generate social economic and political tensions through retrenchment of workers, etc. For attainment of efficiency and productivity, privatisation alone is not enough. Efficiency is not just a function of competition or freedom from controls. but should lead to raising of resources and making decisive impact on mass poverty (12, 1986).

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ECONOMIC DEVELOPMENT THROUGH HUMAN RESOURCE DEVELOPMENT: SOME EMPIRICAL EVIDENCES

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This paper endeavours to test the time honoured relationship between educational investment and economic development with the help of empirical evidences drawn from the economy of the Union Territory of Pondicherry. More specifically, this paper seeks to trace the educational and economic progress of the Territory and examine the relationship between educational expenditure and economic growth. The study has used the secondary data for the period from 1960–1987–88. Appropriate models have been used to analyse the data. The study reveals that there is a strong and positive relationship between educational expenditure, total Government expenditure and State income. Increases in State Domestic Product have caused a positive impact on educational expenditure. The expenditure elasticity is nearly unity for the entire period. The share of educational contribution to State income is positive and high. However, the percentage share of education to State income shows a declining trend. There is a very strong correlation between various levels of education and per capita income of households. A positive association between literacy and per capita income is also established by this study. The findings of this study suggest a number of policy implications which are also summarised in the paper.

Problem Setting

The growing literature on the theory and policy of economic development has perforce recognised the role of human resources in the socio-economic progress of a nation. The empirical experiences of developed countries abundantly exemplify the fact that human resources are the engines of economic, social, cultural and political growth of a nation. They are both the means and end of economic development. Human resources provide precious labour and managerial, technical and entrepreneurial skills required for the development of an economy. Besides, they are both the consumers and producers whose activities determine the well-being of the nation. The fruits of development are reaped by the human beings themselves. Thus, the positive nexus between the development of an economy and human resources is very strong and positive. The striking

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*Professor and Head, and Ph.D. Research Scholar, Department of Economics, Pondicherry examples of Japan and West Germany bear ample testimony to the enormous influence which human resources can exert on the development of a nation.

In view of the over-riding importance of human resources, qualitative development of human resources has been accorded a place of pride in all schemes of development. T.W. Schultz, one of the pioneers in human capital theory, enumerates five ways of promoting human resource development (T.W. Schultz, 1972): (1) health facilities and services, broadly conceived to include all expenditures that affect the life expectancy, strength and stamina, and the vigour and vitality of a people; (2) on the job training, including old style apprenticeship organised by firms; (3) formally organised education at the elementary, secondary, and higher levels; (4) study programmes for adults that are not organised by firms, including extension programmes notably in agriculture; (5) migration of individuals and families to adjust to changing job opportunities. However the influence of education and health is more pervasive and direct. In fact, the qualitative development of human resources is assumed mainly to be a function of education and health.

Education imparts the necessary skills, knowledge, aptitudes, attitudes and perceptions to individuals which make them better and useful citizens. Education has been acknowledged to be a potent instrument of increasing productivity and efficiency of individuals in production activities and thereby contributing to economic betterment of individuals and the economy. Education contributes to economic development directly through productivity, employment, composition of labour force, diversion and mobility of labour (S.C. Goel, 1975). Denison has also identified a positive correlation between educational growth and economic growth in his study of developed countries (Bruce Herrick and Charles P. Kindleberger, 1977). The Indian Planning Commision, realising the useful role of education in economic development commented that "Education is the most important single factor in achieving rapid economic development and technological progress and creating social order founded on the themes of freedom, social justice and equal opportunity" (Government of India, 1966).

Education is both formal and informal and it is imparted through graded school setting and outside institutions. Education, as an economic activity, involves considerable amount of financial resources on creating infrastructure and spread of education. Ever since the advent of Planning in India, investment on education was emphasised by various committees and commissions. Kothari commission, for instance, has recommended that six per cent of the National Domestic Product should be earmarked for educational development. The basic premise of this emphasis was that the investment on education leading to human resource development can contribute to increased national domestic product (NDP). The increased national income can augment the ability of the Government to mobilise resources and invest on education and human resource development. Therefore, there is a direct link between educational investment or expenditure and national income on the one hand and between national income and expenditure on the other.

The Indian experience has endorsed this link between educational expenditure and national income (Ansari, 1988). This experience has been shared by various States and Union Territories in India. The Union Territory of Pondicherry, which registered remarkable and rapid strides in the educational and economic spheres has vindicated this relationship. This paper is an attempt to explore the relationship between human resource development via education and economic development of the Union Territory of Pondicherry. In other words, the empirical evidences drawn from the economy of Pondicherry are used to test the time honoured relationship between educational investment and economic development.

Objectives of the Paper

More specifically, this paper seeks to:

1. trace the educational and economic progress of the Union Territory of Pondicherry since its merger,
2. examine the relationship between educational expenditure and economic growth as measured by State Domestic Product and per capita income,
3. assess the impact of educationally induced factors on the economic development of the Territory and
4. offer policy suggestions to improve the nexus between economic growth and educational investment in future.

Materials and Methods

The objectives of this study are accomplished with the help of the secondary data collected from the Union Territory of Pondicherry for the period from 1962 to 1987-88. The data used mainly relate to the progress of education as indicated by the growth in the number of institutions, students and teachers, progress of the economy as measured by State Domestic Product and per capita income, the price indices, the components of educational expenditure etc. These data were collected from the Abstracts of Statistics and Budgets in Brief published by the Directorate of Economics and Statistics, Government of Pondicherry.

Models Proposed

The linkage between educational and economic development is two fold. The first relationship is that economic development contributes to educational progress. Economic development generates more resources which therefore provide the necessary capacity to invest. Therefore, higher the development, higher is the availability of resources and higher is the degree of educational progress. Educational progress, therefore, is influenced by the amount of educational expenditure. The close relationship between economic development and educational expenditure is obvious. the functional relationship is specified as follows:

$$E = f(Y) \ldots \qquad (1)$$

where,

E = Educational expenditure in Rs. lakhs

Y = State Domestic Product in Rs. lakhs

In its linear form, the functional relationship (1) may be stated as follows:

$$E = a + bY + u \ldots \tag{2}$$

a is the constant and it denotes the autonomous

b is the regression coefficient

u is the error term

The following non-linear form can help us to estimate the expenditure elasticity.

$$\log E = \log a + b \log Y + u \ldots \tag{3}$$

where,

b, the regression co-efficient, denotes the expenditure elasticity in percentage terms.

The relationship between per capita income and expenditure ratio can be measured by the following non-linear model:

$$\log(E/SNP) = \log a + b \log Y_p + u \ldots \tag{4}$$

where,

SNP is net State Domestic Product, Y_p denotes per capita income and a and b are regression parameters.

The above models show the influence of State income and per capita income on education. But the second relationship portrays the contribution of education to economic development. The contribution of education to State income is assessed through the income differential approach as outlined below:

It is now acknowledged that educated workers receive higher personal earnings than workers with no formal education. Under conditions of perfect competition, this difference in incomes cannot exist unless the marginal productivity of the educated worker is higher than the marginal productivity of uneducated workers (Mark Blaug: 1969). This implies that education contributes to increased productivity and income. The difference between the earnings of educated workers and uneducated workers can be used to measure the net contribution of education to State income.

If the average annual earnings of persons educated up to the primary, secondary and higher levels be denoted as Y_1, Y_2, Y_3 and their number in the total labour force in the years as P_1, P_2, P_3, the income of an uneducated worker as b and State income as S, then, the share of education in the State income (E_3) can be expressed by the following formula:

$$E_3 = \frac{(Y_1 - b)p_1 + (Y_2 - b)p_2 + (Y_3 - b)p_3}{S} \tag{5}$$

However, in the application of the above formula, it should be realised that the differences in the earnings are not due exactly to education received by them. The differences may be the result of a number of factors, such as age, initiative, social class origin, family background, on the job training, work experience, etc. Education is only one factor in the package. Hence, the difference in the earning will have to be split into two: (1) difference due to education alone; (2) difference due to other factors. Now if we want to estimate the net contribution of education, the contribution of other factors will have to be deducted from the result of equation 5. Let us denote that portion of the earning differential attributable to education alone as Beta co-efficient (B). The value of this Beta co-efficient will vary according to different socio-economic backgrounds of the State. However, based on NCAER estimates and considerations, the following values are assigned to Beta coefficients: Middle level (B_1) = 0.75; Secondary level (B_2) = 0.6; and higher level (B_3) = 0.5. When these beta values are added to the formula given we can approximately find the contribution of education to State income. The modified formula is

$$E_3 = \frac{(Y_1 - b)B_1p_1 + (Y_2 - b)B_2p_2 + (Y_3 - b)B_3p_3}{S} \times 100 \ldots \tag{6}$$

Statistical Tolls

In addition to the above models, the correlation analysis is also used to study the relationship between literacy and birth rate, the literacy and per capita income, and literacy and poverty. Further, the ordinary percentage and ratio analyses are also used wherever necessary.

Economic and Educational Profile of Pondicherry

Pondicherry, a small charming Union Territory on the east coast of India, is the window of french culture. It joined the mainstream of national life in 1954. The Government of India evinced great interest in the development of this erstwhile French Territory and therefore planning was introduced at the close of the First Plan. Several measures were taken to remove the obstacles of development and today the Territory is one of the developed regions in India.

Economic Progress

The Territory has an area of 492 sq. kms which accounts for 0.01 per cent of India's total area but it has 0.09 per cent of India's total population. The Union Territory consists of four isolated pockets, namely, Pondicherry, Karaikal, Mahe and Yanam. Area wise, the Territory occupies 25th position and in terms of population it ranks 23rd among all States and Union Territories of India. Among the Union Territories, Pondicherry occupies the sixth position with respect to population. In 1981, the total population of the Territory was 6,04,471. The population has grown at the rate of 2.8 per cent per annum in the last decade. The birth rate was 41.9 and death rate was 10.1 per thousand in 1987. The infant mortality rate was 36.1. The child population constitutes 36.5 per cent of the total population. The sex ratio is 985 females per thousand males. The density of population is 1259 persons per sq. km. Scheduled caste population constitute 16 per cent of the total population. The percentage of literacy is 55.85. The Territory is fairly urbanised and more than half of the population live in urban areas. The labour force participation in the Territory is 28.66 while the male labour force participation is 46.02, the female labour force participation is 11.03. The occupational structure of the Territory shows that 40.6 per cent of the labour force was employed in agricultural activities.

Massive amount of investment has been made in various plans to promote the development of agricultural, industrial and tertiary sectors of the economy. For instance, the plan investment has increased from Rs. 49.4 lakhs in the First Plan to Rs. 9896.27 lakhs in the Sixth Plan. The Seventh Plan has earmarked an outlay of Rs. 17,000 lakhs. A notable feature of the Plan investment is that more than half of the plan investment is devoted for social services. Thanks to the plan efforts, the Territory has made remarkable progress as measured by the State income and per capita income. State Domestic Product at current prices increased from Rs. 1,259.21 lakhs in 1960–61 to Rs. 28.572 lakhs in 1986–87, denoting a 22.7 fold increase. State Domestic Product has increased at a compound growth rate of 13.3 per cent per annum during the period under review. State income at constant prices increased by 23.5 times from Rs. 394 lakhs to Rs. 9279 lakhs which denotes a compound growth rate of 10.3 per cent per annum. The per capita income at current prices increased by 12 times from Rs. 341 in 1960–61 to Rs. 3,954 in 1986–87, compound growth rate being 10.5 per cent. But at constant prices, per capita income increased from Rs. 188 to Rs. 1,297.

The primary sector contributes to 21.79 per cent of the State Domestic Product while the secondary sector and tertiary sectors have contributed respectively 49.84 per cent and 28.37 per cent to State income. Within the primary sector, the fisheries sector has shown phenomenal progress while the contribution of agriculture is declining year after year which therefore indicates structural transformation taking place in the economy. The infrastructural facilities in terms of transport, health, housing, water supply, environment shelter is also remarkable after the advent of planning. However, the continuing poverty, unemployment, inequalities, and social conditions tend to mar the smooth progress of the Territory.

Educational Progress

The Union Territory is credited with a glorious history of education and it is a land of learning and wisdom. The seeds of modern education were sown during the french rule in the 18th Century. Before merger, most of the institutions in the Territory were coaching students for french examinations and for Madras matriculation examinations. The facilities for collegiate and technical education were almost non-existent. But the post merger period witnessed a vast expansion in the Indian system of education. The growing investment made by the Government on education has been chiefly responsible for the phenomenal growth in the Territory's educational system.

The share of education in total expenditure has risen from 16.99 per cent in 1960–61 to 24.84 per cent in 1988–89. The actual amount of expenditure on education has increased by 76 times, from Rs. 38.83 lakhs in 1960–61 to Rs. 2,950.55 lakhs in 1988–89. In that year, educational expenditure alone constituted 52.3 per cent of the total expenditure on social and community services. The proportion of State income devoted to education was nine per cent in 1988–89 which is far higher than the proportion suggested by the Kothari Commission. While at the all India level only 3 to 4 per cent of the national income is spent on education, in the Union Territory 9 per cent of the State income is earmarked for educational development. The per capita expenditure on education has increased by 37.3 times from Rs. 10.5 to Rs. 391.5 during this period.

The increasing investment on education has expanded the educational facilities in terms of the number of institutions, teachers and students at all levels of education. The number of institutions has increased from 30 to 110, 252 to 356, 62 to 102, 33 to 85, 329, 71 to 620 respectively at the pre-primary, primary, middle level, higher level, collegiate and professional levels. The number of students has increased from 1,730 to 6,087 at the pre primary level; from 17,062 to 49,835 at the primary level; from 18,306 to 47,959 at the middle level; from 12,551 to 62,815 at the higher level; from 962 to 5,401 at the collegiate level and from 3,022 to 19,264 at professional level. Similar increase has been taking place in the number of teachers also.

The Government today has created a vast network of institutions for promoting education. In 1960–61 there was no college in Karaikal, Mahe and Yanam, but today all the regions are served by a college each. Today there is a high school for an area of six sq. kms as against 75 sq. kms at the all India level. There is a middle school at a distance of five kms. All villages today have elementary schools. As a result of the growing educational facilities, the literacy rate of the Union Territory has increased from 37.43 per cent in 1961–62 to 55.85 per cent in 1981–82. The current literacy rate in the Union Territory is higher than that of Tamil Nadu (45.8 per cent) and India (36.0 per cent). The Territory has already attained universalisation of elementary education. The progress of girls education and scheduled caste education is considerable. The Arivoli Iyakkam launched recently by the Government is intended to achieve cent per cent literacy.

Trends in Educational Expenditure, State Income and Total Expenditure of the Government

With the above educational and economic profiles, it may be worthwhile to look into the overall trends in educational expenditure, State income and total expenditure of the Government. The details of these trends are contained in Table 1.

As can be seen from Table 1, there has been a rising trend in all the three variables considered for discussion. The educational expenditure has increased by 22.17 times from Rs. 133.10 lakhs in 1962–63 to Rs. 2,950.55 lakhs in 1988–89. The growth in educational expenditure was smooth and moderate till 1983–84. After that, there was a quantum jump in the educational expenditure. A similar trend was noticed for the total expenditure incurred by the Government . This increased by 21.09 times during the period under review. The State income has escalated by 19.69 times from Rs. 1,706 lakhs in 1962–63 to Rs. 33,586 lakhs in 1988–89. In the case of State income, the period after 1977–78, witnessed a quantum jump.

TABLE 1

TRENDS IN EDUCATIONAL EXPENDITURE, STATE INCOME AND TOTAL EXPENDITURE OF THE GOVERNMENT

(In Rs. Lakhs)

Year	Educational expenditure	Total expenditure	Income	Proportion of educational expenditure to	
				State income	Public expenditure
1962–63	133.10	294.18	1706	7.80	45.24
1967–68	215.38	574.75	3236	6.66	37.47
1972–73	396.01	1123.00	5135	7.71	32.86
1977–78	728.52	2760.37	10804	6.74	26.39
1983–84	1210.32	5343.70	23707	5.11	22.65
1988–89	2950.55	6205.36	33586	8.79	47.55

Source: Abstract of Statistics, Directorate of Economics and Statistics, various years.

Juxtaposing the growth in educational expenditure and State income, it may be stated that the growth in educational expenditure was greater than the growth in State income itself. While the State income during this period has increased by 19.69 times, the educational expenditure has increased by 22.17 times. This implies that the increased income has enabled the Government to spend more amount on education. The educational expenditure as a proportion of State income was always higher than five per cent. This proportion was 7.8 in 1962–63 and this has increased to nearly nine per cent in 1988–89. As noted earlier, this proportion is more than what was prescribed by the Kothari Commission. The educational expenditure, as a proportion of total public expenditure, exceeded 20 per cent in all the periods. Currently 47.55 per cent of the total public expenditure was incurred on education which again indicates the concern of the Government of Pondicherry to spread education to its people. From these statistics, it can be stated that the responsiveness of educational expenditure to State income and total expenditure has been remarkably high.

From an analysis of the data contained in Table 1, the following conclusions can be derived.

1. there is a strong and positive relationship between educational expenditure, total Government expenditure and State income.
2. the proportion of State income devoted to education is higher than the national proportion.
3. more than proportionate increase in State income has been absorbed as educational expenditure.
4. nearly half of the development expenditure goes for education.

Educational Expenditure and Income: Results of Econometric Analysis

The time series data on educational expenditure and State income were used to estimate the relationship between educational expenditure and State income. The results are given in Table 2.

TABLE 2

ESTIMATED RELATIONSHIP BETWEEN EDUCATIONAL EXPENDITURE AND STATE DOMESTIC PRODUCT (RESULT FOR LINEAR FUNCTION: $(E=a+bY+u)$*

Period	Intercept (a)	S.D.P. (b)	R^2	t value**
1962–87	20.26	0.059	0.86	12.29
1962–70	30.81	0.061	0.92	36.20
1971–80	239.80	0.0298	0.75	4.89
1981–87	−3905.22	0.212	0.99	27.49

* E and Y refers to educational expenditure and State Domestic Product respectively and a and b are regression parameters.

** The results are significant at one per cent level.

It may be seen from Table 2 that the fit of the equation is good as the coefficient of determination, R^2 exceeds 0.86 for the entire period. The 't' values show very significant relationship. The coefficient of regression for the entire period, namely, 0.059 shows that an increase in State income by Rs. 100 has led to an increase in expenditure by Rs. 5.9 only during the period 1962 to 1987. A disaggregate analysis for different periods showed that during the period 1962–70, an amount of Rs. 601 was spent on education out of additional increase in State income of Rs. 100. During the period 1971–80, the incremental expenditure on education was only Rs. 2.9 and for the period 1981–87 it was only Rs. 2.12. This declining trend was noticed for the entire nation also (M.M. Ansari, 1988). Thus the experience of the Union Territory in this respect corresponds close to the national experience.

The results of log linear model are given in Table 3. It may be seen that the value of R^2 exceeded 0.95 for the entire period which means that 95 per cent of the increase in educational expenditure was determined by State income. The 't' values are also highly significant. The coefficient value of 0.868 shows that educational expenditure increased by 0.868 per cent per annum consequent to one per cent increase in State Domestic Product. The period wise decomposition of elasticity coefficients indicated that during the period 1962–70, the elasticity coefficient was 0.81 and for the subsequent period 1971–80, the coefficient declined to 0.6071. But for the current period the coefficient was the highest i.e. 3.620. One plausible reason for this very high magnitude of elasticity may be due to the fact that during this period the increase in State income was much higher than the earlier periods. This would have provided the necessary capacity for the Government to increase its expenditure on education. Further it was during this period that massive efforts at educational progress were taken up by the Government which had necessitated increasing educational expenditure also. Therefore, during this period the educational expenditure increased by 3.62 per cent per annum due to one per cent increase in State income. The elasticity for this period is greater than unity which implies that more than proportionate increase in educational expenditure.

TABLE 3

EDUCATIONAL EXPENDITURE ELASTICITY (RESULTS FOR LOG-LINEAR FUNCTION: $\log E = \log a + b \log Y + u$*

Period	Intercept (a)	S.D.P. (b)	R^2	't' value**
1962–87	–0.021	0.868	0.95	22.28
1962–70	0.463	0.81	0.95	57.86
1971–80	2.3095	0.6079	0.84	6.40
1980–87	–25.90	3.620	0.97	12.46

*E and Y refer to educational expenditure and State income respectively and a and b are regression parameters.

**The results are significant at one per cent level.

The positive association between economic development and educational expenditure as indicated above is also further strengthened by the regression analysis incorporating the per capita income. The result of this linear regression analysis is stated below:

$$EE = -43.52 + 0.165 PCI$$

$$R^2 = 0.63$$

The estimated model shows that 63 per cent of the variation in educational expenditure is contributed by the per capita income. The regression coefficient pertaining to per capita income shows that an increase in per capita income by representing one induces the educational expenditure of Rs. 0.17. This again strengthens the positive relationship between economic development and educational expenditure.

Three important conclusions emerge from this analysis.

1. Increases in State Domestic Product have caused a positive impact on educational expenditure.
2. There has been a decline in incremental expenditure on education associated with the growth of State Domestic Product.
3. Expenditure elasticity is nearly unity for the entire period but this is very high for the current period.

Contribution of Education to State Income

The application of the formula relating to income differential approach to the data revealed the contribution of education to State income. These results are shown in table 4.

TABLE 4

CONTRIBUTION OF EDUCATION TO STATE INCOME IN PONDICHERRY 1960–61 TO 1980–81

Particulars	1960–61	1970–71	1980–81*
Total workers	1,38,370	1,41,025	1,72,841
Illiterates	77,352	76,125	86,182
Literates	61,018	64,900	86,659
Educated up to Std. VIII	37,372	41,342	50,778
Educated up to SSLC	22,518	22,860	30,046
Educated beyond SSLC	1,128	1,621	4,835
Average Earnings of Workers			
Illiterates	900	1,314	2,474
Up to Std. VIII	1,095	2,752	4,227
Up to SSLC	2,920	3,650	7,300
Beyond SSLC	5,400	7,200	12,000
Total contribution of educated workers to State Income (in lakhs)	352.9	813.9	1767.9
Total State income (in lakhs)	1,129	3,923	17,700
Percentage of education contribution to the State Income	28.9	20.9	10.0
Expenditure on education (in lakh)	64.17	296.84	796.61
Cost benefit ratio	1 : 6	1 : 2	1 : 2.2

Source: 1. Abstract of Statistics, 1963–64, 1971, 1980–81, Bureau of Economics and Statistics, Government of Pondicherry.

2. NSS data on Employment and Unemployment for Pondicherry 1977.

*The analysis is restricted to 1981 only due to the non-availability of Census data for subsequent period. This, in fact, is a limitation of this study.

Table 4 discloses that the number of educated workers has increased in the last two decades. Substitution of these numbers in equation (6) gives the contribution of education to State income for three periods. Education could contribute Rs. 352.9 lakh to State income in 1960–61 which increased to Rs. 813.9 lakh in 1970–71 and to Rs. 1,709.2 lakh in 1980–81. However, the share of education expressed as percentage to State income showed a declining trend during the period of study. The share of education which was 28.9 per cent in 1960–61 declined to 10 per cent in 1980–81 though in absolute terms, it has increased.

A probable reason for this trend may be due to the over optimal use of resources on education which result in diminishing productivity and returns. Another possible reason is that most of the educational expenditure is incurred on producing generalists, B.As., B.Scs., M.As. and M.Scs., whose direct contribution to production and income is lesser than that of technically qualified people. Most of these graduates and post-graduates have to wait for a long period before they enter into the production stream. Growing wastage and stagnation as reflected in the number of dropouts also accounts for this tendency. While the expenditure continues to soar, the productivity of educated people has not increased proportionately.

Correlation between Educational Growth and Percapita Income Growth

The benefit of education can also be evaluated through an investigation of the relationship between the growth of education at the primary, secondary and higher levels on the one hand, and per capita income at current prices on the other. The parameters used for this enquiry are n_1, n_2, n_3 and Pci. The enrolments expressed as percentage to total age groups in primary (including middle), secondary and higher levels are denoted by n_1, n_2 and n_3. Pci denotes the per capita income at current prices. The trends in these variables along with the estimated correlation and regression coefficients are contained in Table 5.

The correlation coefficient expresses only a direct relationship between variables. It does not specify a cause effect relationship between educational growth and economic growth. This can be assessed with the help of regression coefficients presented in Table 5. They indicate that one per cent increase in n_1 will be accompained by an increase of Rs. 0.014 in per capita Rs. 0.008 and n_3 by Rs. 0.0023. These regression coefficients, in a way, represent the marginal productivities of each level of education. But values of these coefficients are not considerable and hence favours the earlier inference that general education has lower productivity and its contribution to the State per capita income is only marginal. Nevertheless, its contribution is not negative.

Link between Education and Indicators of Development

The spread of education promotes literacy which in turn raises the productivity and income levels of the people. Improved literacy favourably influences the birth

TABLE 5

EDUCATIONAL GROWTH AND PER CAPITA INCOME IN PONDICHERRY 1960–61 TO 1980–81

Year	n_1	n_2	n_3	Pci
1960–61	33.6	8.5	.32	330
1961–62	40.5	5.1	.77	400
1962–63	42.4	6.1	.83	444
1963–64	41.7	13.2	1.15	504
1964–65	43.4	16.5	1.40	549
1965–66	46.8	18.3	1.60	640
1966–67	47.8	19.3	1.70	704
1967–68	48.1	20.3	2.30	747
1968–69	49.6	21.2	3.40	805
1969–70	49.6	21.5	4.00	818
1970–71	50.1	21.4	5.50	844
1971–72	52.0	21.9	7.10	978
1972–73	51.0	21.6	7.20	1053
1973–74	51.0	22.4	6.80	1372
1974–75	51.0	22.2	7.00	1497
1975–76	51.2	21.7	7.50	1593
1976–77	53.8	24.7	7.70	1718
1977–78	53.7	24.1	7.40	2021
1978–79	54.6	23.0	7.20	2346
1979–80	54.1	27.9	7.50	2747
1980–81	55.4	28.6	6.40	2930

Source: State Income of Pondicherry and Abstract of Statistics and Economics, Pondicherry 1980–81.

Correlation Coefficient		Regression equations
n_1 pci	0.5816	pci = 29.49 + 014 n_1
n_2 pci	0.8832	pci = 9.62 + 0.008 n_2
n_3 pci	0.8816	pci = 1.72 + 0.002 n_3

rate which is an indicator of health status and economic development. The study of the relationship between rate of literacy and the per capita State Domestic Product shows a positive association between literacy and per capita income. The estimated correlation coefficient is 0.96 and it is very significant. This result suggests that for raising per capita income, literacy programmes should be given a high priority. The correlation between female literacy and birth is not high and significant. The findings suggest that improvement in literacy at a faster rate would greatly assist in arresting the population explosion experienced by the Territory.

Policy Implications

The above empirical analysis establishes the relationship between economic development and education on the one hand and education and economic development on the other. However, the declining trend in educational expenditure is a pointer for the Government to take important policy decisions. The second important disconcerting factor is that although the contribution of education to State Domestic Product has increased over the period, the proportion of educational income to State income has been on the decline during the period of study. These two trends need to be reversed if the significant relationship between education and economic development is to be strengthened in future. In this context, the following suggestions are offered:

1. Educational expenditure must be revised upwards in view of the growing educational needs and aspirations of the people of Pondicherry.
2. The proportion of educational expenditure earmarked for primary education should be enhanced primarily for two reasons: (1) The returns to investment on primary education are shown to be more and hence productivity and growth in the economy can be promoted by this strategy. (2) The illiteracy in the Union Territory can be effectively eradicated through more investment at the pre primary and primary levels.
3. The expenditure on liberal education must be drastically reduced as it is not directly contributing to productivity of the economy. The Government should proceed rather cautiously in extending liberal education in the Union Territory. Institutions should be opened only in justifiable circumstances. At a time when there are greater opportunities to receive liberal education through opening University systems, the Government should be restrained from opening new Institutions in the Union Territory. On the other hand, more expenditure should be devoted to promoting technical education by opening Polytechniques, Engineering and other technical institutions. Even here it may be needed to spend money on those aspect of technical education which would produce competent persons for economic activities.
4. The association between education and economic development can be further strengthened if the Government can assess the demand for and supply of manpower for the economy. Till now there are no serious attempts to evolve either education planning or manpower planning in the Union Territory. Therefore, it is suggested that the Government should open a manpower cell which can constantly monitor the growth of the economy, revenue of manpower, output of educational institutions and educational expenditure. Proper and scientific manpower planning would

avoid the collosal unemployment, wastages, stagnation and can also promote better productivity and growth in the economy.

5. Since illiterates form a considerable proportion of total population, efforts to spread adult literacy to a large number of people should be taken up earnestly. The role of the Government to obtain 100 per cent literacy through their recently launched movement called Arioli Iyakkam needs to be strengthened through additional financial support by the Government. In fact, a sizeable amount of the educational expenditure should be earmarked for this purpose.

Summary and Conclusion

This paper has attempted to study the role of human resource development in the economic development of Pondicherry since 1954. It has analysed the possible links between education, economic development and educational expenditure. The study has vindicated a positive relationship between the variables considered in this study. The results of the analysis also suggest certain policy implications for the Government. It is hoped that with timely steps taken by the Government and the modifications of the educational system to attune to the needs of the society, human resources of this Territory would pave the way for a prosperous Territory in the 21st century.

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NOBEL PRIZE IN ECONOMICS (1969–1993): AN ANALYTICAL REVIEW

SOUMITRA SHARMA

Once again, the prestigious Nobel Prize in Economics for 1993 has gone to the University of Chicago—for seventh time in its twenty-four year history and fourth time in a succession—won by *Robert W. Fogel (67)*, a Professor of Modern Economic History at Chicago Business School. The 1993 prize, like many times in the past, has been shared (US$ 825.000) by *Douglas C. North (72)*, a Professor of Economics and Economic History at the George Washington University in St. Louis, making *it an all American Affair* for out of a total of 34 Nobel laureates today, 21 are US citizens.

Like in the past, again, it was a subject of mere speculation as to who will be this year's winner, as quite a few famous names have been the *front horses* of the race. In corridors of renowned economics faculties of the US and UK, gossips were under way and *hot* list of candidates prepared by *Robert E. Lucas* (Stanford University) was in circulation, on which were the names such as *Joseph E. Stiglitz* (Stanford); *Jagdish N. Bhagwati* (Columbia); *Janos Kornai* (Harvard); *Thomas J. Sargent* (Minnesota); *A.B. Atkinson* (London School of Economics); *Edmond Malinvaud* (College de France, Paris) and so on. *Bids* were high for *Joseph E. Stiglitz* and he was practically *bought* by Stanford (as the gossip goes around, for a *price* of some $ 200,000 annual salary plus an *assurance* that within next three years he will certainly win the Nobel Prize).

But once again, it proved futile to speculate. Although, the entire procedure around the Nobel Prize, in general, under goes strict and thorough secrecy, but it remains an open secret that the Nobel committee of the Swedish Academy of Sciences, processes some 75 to 125 names per year, and out of which some 20 names are considered seriously. The Academy nominates the winners by consensus out of a *narrow list* of 3 candidates. Furthermore, as per the propositions of the Nobel award, not only that the names of the proposed candidates **must remain a safely guarded secret** until the last day, the nomination **procedure must also be completed in the life-time of a candidate** (for it was let known that *Jacob Viner, Michael Kalecki* (1970); *Sir Roy F. Harrod* (1978) and *Mrs. Joan V. Robinson* (1983) were on the *narrow* list of candidates for *very serious consideration* and were the *very best bets* in those years).

In selecting this year's Nobel laureates in Economics, like many times in the past, the Royal Swedish Academy of Sciences (Stockholm) has perpetuated some basic traditions and broken some others.

In memory of Alfred Nobel, on its thirtieth anniversary, in 1968, the Swedish Central Bank—Sveriges Riksbank—against a strong opposition of many from within the Swedish Academy of Sciences, prevailed upon by installing a Nobel prize for the economists. Originally, the idea was to make awards in Economics to people for their *pioneering contributions*, and not to *famous names*. But, let us not forget that in the early years the award was hurriedly bestowed upon *famous names* for their *pioneering contributions* lest the contributions and contributors are forgotten. As such, in making this year's awards the Academy, did at least preserve the idea that the recipients are not famous names in Economics but have provided *specific contributions* in a field *not* on the margin of Economics.

According to the Alfred Nobel's *will*, the Prize, in general, should be given for a **discovery, innovation, or improvement** in natural sciences (and now Economics) **to those who have outstanding contributions in the preceding year.** But, all the institutions making Nobel awards (i.e. The Swedish Academy of Sciences, Stockholm; Caroline Institute, Stockholm; The Swedish Academy for Literature, Stockholm; and the Norwegian Parliamentary Committee of Nobel Peace Prize, Oslo) have not always strictly preserved (except in case of medicine and physiology) the proposition of *preceding year.* This year's award in Economics is surely not for laureate's work in the preceding year, but *for their specific contributions.* Evidently, this is a break from the twenty-four year tradition that this years award is not for the *main-stream economic theorists* or econometrician but to economic historians.

Nobel Prize in Economics has so far been awarded to following people:

- 1969 Ragnar Frisch (Oslo University) and Jan Tinbergen (The Netherlands School of Economics)
- 1970 Paul A. Samuelson (MIT)
- 1971 Simon Kuznets (Harvard University)
- 1972 Sir John R. Hicks (All Souls College, Oxford) and Kenneth J. Arrow (Harvard University)
- 1973 Wassily W. Leontief (Harvard University)
- 1974 Gunnar A. Myrdal (Stockholm University) and Fredrich von A. Hayek (University of Freiburg)
- 1975 Leonid V. Kantorovich (Academy of Sciences, Moscow) and Tjalling C. Koopmans (Yale)
- 1976 Milton Friedman (Chicago University)
- 1977 Bertil Ohlin (Stockholm School of Economics) James E. Meade (Cambridge University)
- 1978 Herbert A. Simon (Carnegie-Mellon University)
- 1979 Theodore W. Schultz (Chicago University) and Sir W. Arthur Lewis (Princeton University)
- 1980 Lawrence R. Klein (University of Pennsylvania)
- 1981 James Tobin (Yale University)
- 1982 George J. Stigler (Chicago University)
- 1983 Gerard Debreu (UCAL at Berkeley)

- 1984 Richard Stone (Cambridge University)
- 1985 Franco Modigliani (MIT)
- 1986 James McGill Buchanan (George Mason University, Fairfax) 1987 Robert M. Solow (MIT)
- 1988 Maurice Allais (Paris University)
- 1989 Trygve Haavelmo (Oslo University)
- 1990 Harvey Markowitz (City University of New York), William Sharpe (Stanford University) and Merton Miller (Chicago University)
- 1991 Ronald H. Coase (Chicago University)
- 1992 Gary S. Becker (Chicago University)
- 1993 Robert W. Fogel (Chicago University) and Douglass C. North (Washington University, St. Louis)

If one attempts to classify the recipients of the past awards according to the Nobel citation and the **fields** of their *pioneering research* or *specific contributions* one could place them into the following categories:

1. **Theory of General Equilibrium and Growth Theory**: to Paul A. Samuelson (1970); to Kenneth J. Arrow and Sir John R. Hicks (1972); to James Tobin (1981); to Gerard Debreu (1983); to Robert M. Solow (1987); and to Gary S. Becker (1992).
2. **Economics of Business and Company Finance**: to Maurice Allais (1988); and to Harvey Markovitz, William Sharpe and Merton Miller (1990).
3. **Theoretical Contributions in a Specific Field of Economics**: to Milton Friedman (1976); to James E. Meade and Bertil Ohlin (1977); to Sir W. Arthur Lewis and Theodore W. Schultz (1979); to George J. Stigler (1982); to Franco Modigliani (1985); and Robert W. Fogel and Douglas C. North (1993).
4. **Using Powerful New Methods in Economic Analysis**: to Ragnar Frisch and Jan Tinbergen (1969); to Wassily W. Leontief (1973); to Leonid Kantorovich and Tjalling C. Koopmans (1975); to Sir Richard Stone (1984); and to Trygve Haavelmo (1989).
5. **Pure Empirical Research**: to Simon Kuznets (1971); and to Lawrence R. Klein (1980).
6. **Originality of Thought**: to Fredrich A. von Hayek (1974); and to Gunnar K. Myrdal (1974).
7. **Research in Inter-disciplinary Fields of Economics**: to Herbert A. Simon (1978) to J. McGil Buchanan (1986); and to Ronald H. Coase (1991).

As a matter of opinion which might, however, be considered as biased, it must be recognised that the Nobel Prize has invariably *drifted away* from pure economic theory towards econometric methods, and lately to allied subjects. One hardly can pretend or one is competent enough to question the merit of any of the recipients of the past awards, but for reasons for personal appreciation for the work of some and not of others, one could isolate those who have contributed to *macro-economic theory* and *methods of economic analysis*. It must however be noted that in no way this does reflect that microeconomists, economic historians, or the institutional economists's have not contributed towards the development of economic science or their contributions are less significant. Our only argument is that had these contributions been equally important for the *main-stream economics* (macro or micro economics) their's would have been the domination on economic theory and thus on the Nobel Prize.

From the above review an interesting pattern follows and some basic conclusions can be drawn. Firstly, the award has basically been made for the contributions that followed the period after II World War; secondly, out of 34 laureates 21 are US citizens and except Lewis—West Indian but a British national—rest belong to the European continent and there is not one single women who is honoured so far; thirdly, there had been a very strong bias for mathematical methods and techniques in the awards and that too skewed towards general equilibrium analysis rather the partial equilibrium analysis or empirical analysis; fourthly, there had been a general tendency to appraise various fields of macroeconomic theory and it is only in case of Hayek and Myrdal that the award was made for general understanding of economic phenomena and social processes; fifthly, importance of some new approaches (e.g. the role of organizational behaviour, information economics, human resources, contractual law, economics of regulation, economic history etc.) in understanding economic processes is also being lately recognised; and lastly, a pluralistic and multi-disciplinary approach has been observed in the past period. All these facts certainly do have a very strong impact on the overall development of economic science, and it can be said that the Prize, conforms the original *will* of Alfred Nobel.

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INSTITUTIONS FOR SUSTAINABLE DEVELOPMENT

PAUL STREETEN

1. Introduction

Sustainable development, in the words of the report of Gro Harlem Brundtland, chairman of the World Commission on Environment and Development, is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."[1] This definition is sufficiently vague to cover many contingencies. J.R. Hicks similarly wrote that "the purpose of income calculation in practical affairs is to give people an indication of the amount which they can consume without impoverishing themselves."[2] Even this definition is elusive, because the maximum amount of consumption that an individual can expect to maintain while keeping the initial level of wealth intact depends on his expectations of future prices and interest rates.[3]

Sustainable development has come to mean much more than maintaining intact the physical and human capital that produces an income stream (or increasing it in line with population growth, technological developments, intertemporal preferences, etc.). Maintenance, replacement and growth of capital assets, both physical and human, is certainly one aspect of sustainability. Physical wear and tear, technical obsolescence, and the depreciation of human capital have to be taken into account.

A second aspect, to which much attention has been paid recently, is maintaining the physical environmental conditions for the constituents of well-being. Unless the environmental resources serving as inputs are valued in themselves, it is the results, not the means, that must be sustained. This implies avoiding polluting the water, air, and land on which our lives and our work depend, and avoiding the exhaustion of renewable resources that are essential for production, unless adequate replacement is provided. (It may imply increasing these environmental resources, again depending on population growth, technology, preferences, etc.)

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[1] *Our Common Future*, Report of the World Commission on Environment and Development, Oxford University Press, 1987. Another definition in the same Report defines sustainable development as "a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations" (p. 46).

[2] J.R. Hicks, *Value and Capital*, 2nd edition, OUP, UK, 1946, p. 172.

[3] Whether the current high levels of real interest rates lead to premature raw material exhaustion, or whether they choke off investment sufficiently to avoid this, is an important subject for sustainable development. It is, however, not explored in this paper. I have argued elsewhere that there is no case for a positive pure time discount rate. See Paul Streeten, "What do we owe the future?" *Resources Policy*, March 1986.

Related to this is a third aspect of sustainability, which is resilience. The system must be able to adjust to shocks and crises, to be sufficiently flexible and diverse, with respect to resources (including biological diversity) and practices (including approaches to knowledge), to maintain itself in the face of an uncertain future.

A fourth aspect is avoiding burdening future generations with internal and external debts. Although to anybody burdened with a debt liability there corresponds an equivalent asset holder, this does not mean that the net debt burden is zero. Tax liabilities, and the ability to enjoy interest receipts, have important effects on incentives to work, save and risk, in addition to the distributional impact.

A fifth aspect of sustainable development is fiscal, administrative and political sustainability. A policy must be credible and acceptable to the citizens, so that there is sufficient consent to carry it out. Fear of popular protest in the form of mass demonstrations or riots can frustrate reforms. In order to be sustainable politically, the course of opposition and resistance has to be traced and measures to overcome it have to be designed. The administrative apparatus must be capable of carrying it out on a continuing basis, and revenue must be available to meet the needs of public expenditure. International peace and domestic security are important dimensions of political sustainability.

A sixth aspect is the ability to hand over projects to the management by citizens of the developing country in which they are, so that foreign experts can withdraw without jeopardizing their success. This implies training local counterparts and helping to create local technological, managerial and administrative capacity.

Sustainability is therefore a multi-dimensional problem. It implies responsible behaviour towards future generations, despite the fact that they have no vote and cannot put direct pressures on policy-makers. The main concern of this paper is the second and third aspects, environmental sustainability.

"Sustainability", by itself, is however not a clearly defined term. First, there is the problem, already mentioned, whether one should be concerned with sustaining the constituents of well-being or its determinants, whether with the means or the ends. Clearly, what ought to matter are the constituents, the health, welfare and prosperity of the people, and not so many tons of minerals, so many trees, or so many animal species. Yet, some of the writings on the subject confuse the two. If in the process of curing ovarian and other forms of cancer the Pacific yew trees (or even the Northern spotted owl, to whom the forests are home) had to be reduced in number, in order to produce the drug taxol, people's health must be given priority over trees.[4] Of course, some would want to attach end-values to many of the constituents, in so far as they are part of "nature". This view might be called ethical environmentalism in contrast with prudential environmentalism.

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[4] Recently researchers at the University of Kansas said a Himalayan relative of the Pacific yew tree could serve as an alternative source of taxol. From this tree, Taxus baccata, unlike the yew tree, taxol can be extracted without hurting the tree. See *Wall Street Journal*, Monday, April 20, 1992, B6.

Then there is the question as to sustainability at what level, or at what rate of growth or decline? There is nothing sacrosanct about the existing stock of resources. Population in Western Europe is stationary or may decline, but Kenya's population will be three times today's in 2025, and world population will be more than 8 billion people, compared with over 5 billion today. Sustaining income per head for mankind may imply increasing the stock of resources. On the other hand, substitution possibilities and technical innovation imply the ability to run some down. Population growth, technological innovations, and intertemporal preferences will determine whether the stock should be increased, kept constant or reduced, and at what rates, or whether its composition should be changed. But, as *The Economist* has put it, "sustainable development is still useful. Like many important ideas, it is better than nothing for as long as there is nothing better".[5]

2. Threats to the environment of developing countries

The principal threats to the physical environment of the developing countries can be grouped under the following headings.

1. Continuing rapid rates of population growth
2. Accelerating rates of urbanization
3. Atomic energy: accidents, waste disposal, sabotage
4. Damage done by persistent pesticides and other dangers to the food chain
5. Damage done by industrial trace materials and toxic waste disposal
6. Destruction of forests and soils, plant and animal life
7. Silting and salination
8. Global and regional transnational concerns about warming, the ozone layer, acid rain, ocean pollution, etc.

It will be seen that this list overlaps, but is not identical, with a similar list that could be drawn up for advanced industrial countries. Whereas poverty is the main cause of environmental degradation in poor countries, it is opulence in the rich countries. (This is not true of all form of environmental degradation. Urban air and water quality has shown a tendency to improve above a certain income level). Poverty and population pressure drive people to the cultivation of even more marginal land. This erodes the soil and depletes shallow water resources, causing growing poverty as crop yields fall and women spend more time collecting firewood and fetching water. It is estimated that 14 million people in the developing countries have become environmental refugees, driven from their homes by environmental degradation. The poor are both the cause and the victims of environmental degradation.

The rapid rates of population growth are the consequence of the introduction of modern death rates, resulting from modern death control, into societies with little cheap and effective birth control, and hence with traditional birth rates. At low income levels children are wanted because firewood and water have to be collected and many household chores have to be done. Old people need sons to look after them. Even young parents need many helpers. There is a vicious circle between the desire for large families, which leads to environmental damage, and the need for more hands to overcome the damage.

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[5] *The Economist*, September 16, 1989, p. 77.

The so-called demographic transition from one equilibrium, in which both death rates and birth rates are high, to another, in which both are low, is both difficult and slow. The implications of this demographic transition have been discussed at length, and all that is needed here is to note that it involves heavy environmental pressures in the poorest societies. Population growth in the developing countries is about five times as great as it is in the advanced countries in the second half of this century. The world's population has doubled since 1950 and will be well in excess of 10 billion in 2050. It may be as large as 20 billion. The share of people living in the advanced countries has fallen from 35 per cent in 1950 to about 20 per cent today, and continues to fall. The 80 per cent in the developing countries account for less than 20 per cent of the world's consumption. If present trends continue, world population will not stabilize until a size of 10 or 11 billion is reached. About 40 per cent of the population in the developing countries is less than 15 years old, compared with 30 per cent in the developed countries. The high dependency ratio implied by such an age distribution puts a heavy burden on the working population, on social services such as education, on the government budget, and on the ability to mobilize resources for development.

It is anticipated that between now and the year 2000 one billion people will be added to the populations of cities, more than the total number in cities now. The fastest growing cities are in the developing countries, where the ability to cope with the strains of urbanization is the weakest. Here again, the literature is large and it must suffice to mention the high costs of urban services and the threats to the environment from pollution of air and water, congestion, noise and disease transmission.

The dangers from atomic energy, on which many developing countries are embarking, stem from the threat of the proliferation of nuclear weapon capability, reactor failures, the difficulties of disposing of radioactive waste, the possibility of diverting plutonium by terrorist groups, and the uncertainty about radiological standards. Less widely discussed but perhaps at least equally serious is the potential threat to civil liberties that arises from the need to protect societies against terrorists and saboteurs. The need for armed guards and possibly private armies to guard nuclear power stations can bode ill for human freedom. While all these problems exist also in advanced countries, the level of technical competence of dealing with them is lower in developing countries. Some of these dangers have implications that reach beyond national boundaries. They call for international coordination or transnational, global institutions, to be discussed more fully below.

The attraction of using cheap and effective chemical pesticides in agriculture in countries where the pressure to grow more food is very strong is clear, but the long-term adverse effects can be immense.

The urgent advances of industrialization will tend to spread trace materials of industrial origin: mercury, cadmium, polychlorinated biphenyls and other substances can have poisoning effects on people. Paper that is chlorine bleached contains dioxin and other organochlorines, which, in sufficiently large doses, are hazardous substances. Lavatory paper, tampons, kleenex, milk cartons, coffee filters and disposal diapers contain it.[6] Firms from advanced countries have used developing countries as the dumping ground for their toxic waste.

The destruction of tropical forests as a result of the need for fuel (or for foreign exchange from the export of wood), with the associated adverse effects on soils, is now well documented, though the effects on climate and the global atmosphere, and on the alleged mass extinctions of plant and animal species, are more controversial. Dams have caused silting and irrigation canals have led to salination, destroying the fertility of the land.

A concern for environmental protection for developing countries is often met with hostility. It is felt that the industrialized countries have achieved high levels of living and now wish to prevent or slow down the same process of industrialization in the developing countries, for the sake of preserving values that are mainly the concern of the rich. Sceptics of environmental protection can also say that preserving the environment has many of the ingredients beloved of women's magazines—animals, a strong medical interest, and a readily identifiable villain. It is a cause that appears to appeal to the most advanced sociologists and to those who detest change in any form, to old women of both sexes and to the revolting young of unidentifiable sex, to the silent majority and the screaming minority, to the young swingers and to the old danglers. The majority of respondents in a recent Louis Harris poll in the USA rated a clean environment more important than a satisfactory sex life.[7] No wonder, then, that some spokesmen for the developing countries have said to those from the developed countries: "you have enriched yourselves by rapacious exhaustion of scarce raw materials and polluting the environment, and now you want to stop the world and want us to get off. We shall worry about the environment when we have become as rich as you."

Such reactions, perhaps less common today than a few years ago, are entirely understandable. It is generally true that the benefits of additional production and incomes are greater, the lower the income per head, and the harm done by pollution is less, the lower the level of industrialization, urbanization, and production. For this reason, it would be absurd to impose uniform environmental standards everywhere, irrespective of the level of development. But it is often cheaper to design processes that are low in destructive material discharges than to try later to modify these wastes and damages, once they have been generated. There is no reason why developing countries should not learn from the mistakes of the now advanced countries and avoid courses of action that they would later regret. It has been found that the additional costs attributable to environmental and health safeguards in non-environmental projects has ranged from zero to 3 per cent of total project costs. Costs are lower the earlier the protective measures are added to the project design. Increasingly, these protective measures are being incorporated in the basic design of projects, such as emission controls for industrial plants. Prevention is much cheaper and more effective than cure. Sound watershed management, for example which protects reservoirs from siltation and floods, costs much less than rehabilitation of a deforested, eroded watershed.

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[6] Recently there has been a reassessment of dioxin. It is now regarded as only a moderate threat to human beings. It appears far less risky, for example, than asbestos, radon, nickel, coke, chromates or smoking.

[7] *The Atlantic Monthly*, October 1990, p. 46.

It remains true that the rich countries' consumption of energy is profligate. They enjoy spacious houses with high heating and cooling costs, and sprawling cities with roads clogged by two or three cars per family. The advanced countries produce about half of the 6 billion metric tons of greenhouse gases emitted each year, with only one fifth of the world's population. This is, of course, a reflection of the very unequal distribution of wealth and income. Energy consumption in the developing countries is expected to grow at a rate of 5 per cent a year, from 2,000 million tons of oil equivalent (mte) today to over 3,000 by the end of the century. All countries will have to raise their energy efficiency and develop new and renewable sources of energy.

The UK rate of population growth, for example, is 0.2 per cent per year, with a population of 58 million, while that of Bangladesh is 2.4 per cent per year with a population of 117 million. This means an extra 116,000 people in Britain, and 2.8 million in Bangladesh, or 24 times as many. But each person in Britain consumes energy equivalent of 40 barrels of oil per year, or 4.6 million barrels for the 116,000 newcomers. Each Bangladeshi consumes only one barrel of oil-equivalent energy per year, or 2.8 million barrels for the annual new arrivals. The implications for the greenhouse effect for Bangladesh are that it may lose one fifth of its territory to the rise in the sea level.[8]

3. Economic growth versus environment?

The problem of "growth versus the environment" is wrongly posed. Growth is simply the intertemporal dimension of any strategy. Production, consumption, poverty reduction, income redistribution, employment, environmental protection, must each have a time profile, and this may give rise to inter-temporal tradeoffs. Economic growth is a side-effect, not the aim, of a rational economic policy. It could be that sustainable development calls for *more*, not less growth. It certainly calls for *differently composed* growth. For, although zero growth is not an option, unless sustainable development is consciously pursued, zero or negative growth could well be the result.

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[8] Letter by Mr. Norman Myers in *The Times*, August 7, 1991.

With technology given, four options should, theoretically, be considered. First, we may abstain from producing as much as we otherwise would, in order to reduce pollution and raw material exhaustion, which are closely linked to the pattern of production. We opt for fewer goods, in order to be saddled with fewer bads. Second, we devote resources that would have produced goods to produce products that combat pollution: more anti-bads. Whether this implies stepping up the rate of growth of national product, slowing it down, or changing its composition, depends on conventions of national income accounting. Much that is now counted as part of net national income should be deducted as intermediate production, as anti-bads, required to combat the bads produced in the course of generating the NNP. There is something to be said for the foundation of a Society for the Promotion of Anti-Bads.

Third, we may step up the production of goods, notwithstanding the fact that they aggravate pollution, to a degree that compensates for the growth of pollution: more goods to make up for the growth of bads. Finally, we may produce different products, with different characteristics. These are not as attractive as those that would have been produced without regard to pollution, but with the compensating merit that they carry with them less pollution: goods that are not quite so "good", but that generate also fewer "bads". Cars may travel more slowly, but are also less polluting. Compared with these four options zero growth, sometimes advocated, would be not only a blunt, but also an ineffective instrument for achieving a sustainable environment.

In practice, it is normally much cheaper and more effective to take preventive action before the creation of bads than to compensate for their generation or to produce instruments to combat them. Just as it is easier to build distributional objectives into the growth process, or protection of the poor into the adjustment process *ab initio*, so it is more effective to build environmental objectives from the beginning into the direction and composition of growth.

In addition, there is much evidence that some previously polluting agents can be used profitably and harmlessly, so that no trade-off arises. It points to the existence of unexplored and unexploited profit opportunities, which can be seized as a result of environmental regulation. Effluents, previously discharged into rivers, have turned out to have commercial uses. When unexplored and unexploited profit opportunities are discovered, bads can be transformed into goods. This may require some expenditure on technical research. In other cases, cheap substitutes can be used to replace damaging substances. Du Pont, the world's largest producer of chlorofluorocarbons (CFCs), had discovered some equally cheap substitutes, which made the provisions of the Montreal Protocol of 1987 (signed by 57 countries), for the protection of the ozone layer (which protects us from certain types of cancer), acceptable. International Business Machines Corporation, America's largest source of CFC-113 emissions had reduced its emissions in May 1991 by 95 per cent from the 1987 level. In the

Ottawa Agreement of 1988 some industrial countries bound themselves to reduce the volume of CFC emissions by the end of the century to half the 1986 level.

The leading electronics companies have moved more rapidly than expected to phase out the use of industrial cleansers that damage the ozone layer. CFCs are used, in addition to air conditioners, refrigerators and foam insulation, to clean circuit boards and sensitive electronic components. Now cheaper, more effective and less damaging alternatives have been discovered, including warm, soapy water.[9] Some companies have developed circuit boards that need no cleaning at all.

Solvents used in the manufacture of pressure-sensitive tape were replaced with solventless raw materials, reducing 1,100 tonnes of solvent emissions and saving $ 1.5 mill. on one factory alone. On another tape-making line, an inert condensation type solvent recovery system recycles about 2,500,000 lbs of solvent previously emitted in the atmosphere at an annual saving of $ 750,000 in solvent, production and energy costs. Modification of a plant boiler to burn high-hydrocarbon exhaust from a maker saved a million dollars in add-on pollution control and is likely to recover $ 270,000 of energy annually. Ammonium sulphite produced in reactors during the formulation of iron oxide, previously discharged through a waste water treatment plant into a river, is now concentrated in a vapour compression evaporator and sold as liquid fertilizer worth about $ 271,000 a year; savings in pollution control equipment totalled $ 1 mill. Examples could be multiplied.[10]

Environmentalists claim that these discoveries have important implications for other environmental concerns, including the reduction of the use of fossil fuels, which contributes to global warming, the elimination of CFCs from aerosol cans, and the formulation of cleaner gasolines.

Professor Michael Porter of the Harvard Business School has shown that environmental regulations are entirely consistent with maintaining international competitiveness. In his book *The Competitive Advantage of Nations*, he found that countries with the most rigorous requirements often lead in exports of the affected products. The reason for this paradoxical conclusion is that regulations force companies to redesign their technology, to innovate, and to find new uses for waste products. The result in the medium to long term is often lower costs and improved product quality. Processes are adopted that lower the use of scarce or toxic resources and that recycle profitably previously wasted by-products.

Three types of questions have to be investigated: first, the relationship between differently composed rates of population growth and of income per head and the discharge of harmful substances; second, the relation between these substances and the physical environment; and thirdly, the impact of these changes in the physical environment on the health and well-being of human beings, both now and in the future. The first is technical, the second physical, the third biological and physiological.[11] Having answered these three sets of factual questions, the problem becomes one of evaluating any remaining conflicts between higher incomes and environmental degradation and sharing fairly any sacrifices, either of the environment or of income, between the partners. Such fair sharing will involve compensation of poorer countries by richer ones for accepting measures of environmental protection that are either more costly or reduce the rate of growth. This can be done, for example, by issuing permits for emissions in excess of their needs to low-income countries, which they could sell to the high income countries, who will want to use more permits than they have been initially allocated. A system of monitoring both the state of the environment, and individual countries' performance and discharges, will be needed, as well as mechanisms for penalizing offenders. UNEP now has a Global Environmental Monitoring System (GEMS), although it is grossly underfinanced.

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[9] *The New York Times*, May 15, 1991. D. 11.

[10] *The Times*, October 15, 1984, Science Report by Tony Samstag, "Pollution prevention pays handsomely".

There is now firm evidence available to answer the first question, viz. the relation between income and certain types of pollution. The main conclusion is that urban SO_2 concentrations, and urban suspended particulate matter levels are *lower* per cubic metre in high income cities than in low income cities. It is also evident that these concentrations have been falling in high income and middle income cities between 1980 and 1989.

4. Human, sustainable development: policy issues

There is some overlap with, but there are also important differences between, the environmental problems of poor and rich countries. Poverty has been one of the most important enemies of sustainable environment, and environmental degradation has reinforced poverty. As has already been said, the poor are both the cause and the principal victims of environmental degradation. To be freed from this vicious circle not only sustains the environment, but is above all beneficial for the human beings who live in it. The fundamental concern of the development effort is not with enlarging the choices of trees, but of humans. Deforestation and soil erosion as a result of the growing need for fuel wood; the spread of schistosomiasis or bilharzia from stagnant water reservoirs; the spread of onchocerciasis or river blindness from running mountain streams; these are the environmental problems of poor rural people, caused by them and imposing suffering on them. The eradication of poverty will also remove these environmental threats, and their removal will contribute to the reduction of poverty.

The first lesson is that late industrial starters can learn from the mistakes of earlier starters. It is possible to avoid in the beginning the creation of the environmental damage that the advanced industrial countries have inflicted upon themselves, and the wasteful uses of energy that the Western style of industrialization has involved. Heavy dependence on oil supplies and being hooked on the motor car, can be avoided by more energy conservation and greater use of indigenous sources of energy. These would also contribute to greater self-reliance.

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[11] See Robert Dorfman, "Protecting the Global Environment: An Immodest Proposal", *World Development*, volume 19 Number 1, January 1991.

A second set of policy questions relates to the international location of dirty processes. Just as differences in factor endowments guide the allocation of resources according to comparative advantage, so differences in pollution costs should in principle guide international specialization of industry. The costs of pollution will tend to be lower in many developing countries, or at least in some areas (cities like Cairo and Lagos are more polluted than London or Washington), and the benefits to be derived from industrial production will tend to be higher, because incomes are lower. This argument assumes that the benefits from higher incomes accrue to the poor. For both these reasons, a shift of some polluting activities from the industrial countries to the developing countries (and perhaps some trade in toxic waste) can be envisaged. The rule might be summed up by saying, what some find grubby, others find groovy. But this has to be qualified to protect the poor in the developing countries, who are liable to be the chief victims of uncontrolled pollution.

A distinction should be drawn between *local*, *regional*, and *global* pollution. *Global* pollution includes the spread of persistent pesticide residues that can be carried far beyond national frontiers; acid rain; the burning of fossil fuels, and the release of carbon dioxide, methane, nitrous oxides and chlorofluorocarbons (CFCs) into the atmosphere that may lead to the greenhouse effect and global warming; (although some say it will usher in a new ice age); deforestation, especially in the tropical rain forests, which may upset the ecological balance and deplete genetic resources; the pollution of the oceans through oil spillage or dumping from ships; the pollution of air streams by jets; the destruction of the ozone layer through chlorofluorocarbons, which causes skin cancer, cataract and other health problems; ultraviolet radiation that may lower the harvest of soybeans, the world's leading protein crop; and there are other induced changes in the global climate; chemical wastes that seep downwards to poison ground water and upwards to destroy the atmosphere's delicate balance; acid rain that ruins forests; and so on.

Regional pollution arises from the geophysical linkages between several countries, such as river pollution, desertification and regional air pollution. Deforestation in the Himalayas causes flooding in Bangladesh. DDT is banned in the USA, yet it is found in the mud of Lake Siskiwit near Lake Superior, carried by the wind. Acid rain, sulfur dioxide emitted from US coal-fired power plants, is carried to Canadian forests.

Local pollution is confined within national boundaries, such as the eutrophication of a lake from fertilizer or sewage discharge. It would be legitimate for a country to restrict activities and products that would affect it and that result from another country's activities, but such restrictions must not be used as a pretext for protectionism by the industrial countries, where the pollution is purely local and remains confined to the area of production in the developing country.

Taxes imposed by industrial countries on their pollution-intensive activities can be used by them as an excuse to exclude imports from countries that can conduct these activities at lower social costs without harm to the importing country. The "sweated environment" argument for protection is as fallacious as the "sweated labour" argument. The international free trade unions are misguided (or act in the interest of rich country trade unions) in advocating a clause in GATT that would insist on the same environmental standards for all countries, so as not to give an "unfair" advantage to poor countries. Local environmental problems are also presented by traffic congestion in cities, pollution of beaches and along coast lines, and suburban sprawl.

A third set of policy questions relates to the return to the use of some natural products that had been hit by the invention of synthetics, but in the production of which the costs of pollution had not been allowed for. Pyrethrum against DDT is one example; natural fibres against synthetic fibres, another. Some of these natural products have the advantage not only of being free from pollution, but also of being efficiently labour-intensive (often female labour-intensive) and contributing to rural development, and therefore to employment and reduced rural-urban migration.

A fourth set of questions concerns the actions developing countries should take in the face of growing scarcity of non-renewable natural resources. Many of these have not been priced according to their scarcity, taking into account a proper social discount rate and risk premium. A correct pricing policy would provide incentives for more economical use of these products, for switching to products that use less of these materials or none, for a search for new sources of these materials, and for the development of substitutes. Meanwhile the higher revenue earned by the material-exporting developing countries should be used for diversification and development, while developing countries dependent on their imports but without corresponding high-priced exports should be insured against damage from higher prices.

Economists have a bias in favour of using prices to reduce pollution and raw material exhaustion. Non-economists object to using taxes to discourage damaging activities and to granting "licences to pollute" and licences to despoil. The differences rest upon attaching different moral evaluations to different things. People value the opportunity to express *disapproval*, which would not be reflected in a fine balance of benefits and costs. Licences are normally not given for activities that should be stamped as illegitimate. (But licences are given to carry guns in the USA). Putting a price tag on a highly valued item demeans it. The opponents of price policies may also think that the motive makes a difference, whereas taxes are indifferent to motives.[12]

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[12] See William J. Baumol's review of Steven Kelman's book *What price incentives? Economists and the environment*, in *Journal of Economic Literature*, Vol. XX (December 1982) pp. 1105–1106. Baumol replies to the possible view of economists that these ways of thinking are irrational: "But, as Kelman asks, is it irrational to distinguish between

But it is not enough to estimate the possibility of exhaustion and to attach a price to these materials, allowing for time and uncertainty; what is also needed is coordinated action between the developing countries in which these non-renewable materials are to be found. Incentives, both rewards and penalties, are required to secure joint action, and agreement on rules about how increases in revenue derived from joint scarcity pricing should be shared and used for development. In particular, ways should be found to mitigate or prevent harm being done to developing countries that depend on the imports of these materials.

A fifth set of questions concerns the role of transnational companies for environmental policy. In the new international division of labour, which would be guided by differential pollution costs in different countries, the location of certain "dirty" processes in developing countries could be one of the functions of the transnational corporation. This could be done either by the firm locating certain "dirty" processes within its vertically integrated system of operations in a developing country where the social costs of pollution are lower and the benefits from industrialization higher, or by transferring the whole integrated operation to such a country. The argument would be analogous to that of locating unskilled or semi-skilled labour-intensive processes and products in developing countries. One important advantage is that the transnational corporation will act as a pressure group to ensure access for the products to the markets of the developed countries, which might otherwise put up protectionist barriers under the pretext of environmental protection.

5. Global institutions for sustainable development

The problems of the local environment are different from those of the global. Common property rights to a local pond or grazing area are often respected, and behaviour has evolved that prevents their destruction. Not so for the global commons. Our present interdependent, pluralistic, multi-polar world is less stable, and more in need of the promotion of peace, prosperity, conservation and global leadership than past orders, in which a single dominant power has assumed these responsibilities. No single power is both able and willing to assume these functions today. Although this can be a danger, it also presents us for the first time in history with the opportunity to create a world order based not on dominance and dependence, but on equality, pluralism and cooperation. This calls for the exercise of our creative institutional imagination and for sacrifices of national sovereignty.

We are suffering from a lag of institutions behind technology. The revolutions in the technologies of transport, travel, communications and information have

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manslaughter and murder? After all, the victim is equally dead in both cases! He cites Justice Holmes' telling aphorism even a dog distinguishes between being stumbled over and being kicked." He adds, "In a profession committed to a position that we should not tell people what they *ought* to want, and that the utility functions, which we usually accept as given data, are what should enter the social maxim and, it ill behooves us to reject such beliefs out of hand."

unified and shrunk the globe, but the organization of the world into nation states dates back to the Peace of Westphalia in 1648, to the 19th century unifications of Germany and Italy, and the post-world war I creation of new nation states. When the nation states were founded, the city states and the feudalism that preceded them had become too small for the scale of operations required by the Industrial Revolution. The political institution therefore was adapted to the new industrial technology, to the roads, railways and canals. The nation state was then a progressive institution. But technological determinism is not plausible. The adaptation of institutions to technology is not an inevitable process. The Middle Ages had, for example, lost the Roman technology about roads, baths, aquaeducts and amphitheatres, and these were allowed to fall into disrepair. But now the nation state, with its insistence on full sovereignty, has become an obstacle to further progress. It has landed us in several Prisoners' Dilemmas: each nation acts in its rational self-interest, and the result is that every country is worse off. It pays each nation to pursue this mutually destructive course, whether others do likewise or not.

I shall not discuss the desirability or the feasibility of a world government. If it ever were to come about, it would probably be the result of a trend we are already beginning to observe. Common interests and conflicts are running nowadays across national boundaries. The European farmers are in conflict with the European industrialists and the public that has to pay for the Common Agricultural Policy. The advanced countries' textile manufacturers are aligned in the Multifibre Arrangement against Third World textile exporters and the consumers in industrial countries. US industrial interests are aligned with Third World debtors in wishing interest rates to be low, against its financial interests, who like high interest rates. Industrial countries' bankers are aligned with developing countries' exporters, against the protectionist lobbies of those who fear imports. The nation state may become the inappropriate level at which such issues can be resolved.

Clearly, **prisoners' dilemma** outcomes move the world economy away from a more to a less efficient allocation of resources. There exist, therefore, potential gains, by moving back to more efficient allocations. According to **Coase's theorem**, in the absence of transaction costs and in the presence of well specified property rights, a legal framework, and full information, if one country inflicts damages on another which are greater than the benefits to the first country, the injured country will enter into a contract with the injuring country and compensate it for not inflicting the injury, and still be better off. Or, if the benefits are greater than the damage, the injuring country can compensate the injured country for accepting the damage, and still be better off than it would have been, had it been prevented from inflicting the damage. For example, the US emits acid rain to Canada. Canada could then offer compensation to the US for relinquishing the emission of sulphur dioxide, the chief component in acid rain, and still be better off than it would be in accepting the acid rain; or the US could offer compensation to Canada for accepting the acid rain and still be better off than it would be if it had to clean up the mess and stop the emission. But as well all know to our regret, we are far away from outcomes according to Coase's theorem, although we are always at the other end of the spectrum, the Prisoners' Dilemma. Coase's theorem remains useful, in spite of its unrealistic assumptions, in drawing out attention to the fact that there are unexploited mutual profit opportunities from restraint. Obviously compensation ought not always, or even often, to be paid. The losers, such as the English landlords after the repeal of the Corn Laws in 1846, may not deserve to be compensated; or, even if they do deserve it, the costs of imposing taxes to finance the compensation may be so large as to make the compensation uneconomic. But the fact that it *could* be paid draws our attention to potential unexploited gains.

Add to the Prisoners' Dilemma the free rider problem, according to which each country relies on others to bear the costs of arrangements that benefit everybody. As a result, public goods, such as peace, an open trading system, including freedom of the seas, well defined property rights, standards of weights and measures, international stability, a working monetary system, or conservation of the global environment, are undersupplied, while public bads, such as wars, pollution, raw material exhaustion, and poverty, are oversupplied. The situation has been described in parables and similes such as the Tragedy of the Commons, Social Traps, the Isolation Paradox, etc. Everybody free rides, and thereby ensures that there is no horse. These parables contradict the parable of the Invisible Hand, according to which the pursuit of self-interest by each individual promotes the good of all.

The ranking of preferences by each country is the following:

1. My country does not contribute while others do. (Free rider, defection of one.)
2. My country contributes together with others. (Cooperation.)
3. No country contributes. (Prisoners' Dilemma outcome.)
4. My country contributes while no other country does. (Sucker.)

Behaviour by each according to 1, or the fear of 4, leads to ouctome 3. Although 2 is preferred to 3, we end up with 3, unless either rewards and penalities, or autonomous cooperative motivations, lead to 2. Incentives and expectations must be such as to rule out outcomes 4 and 1, so that if I (or you) contribute, I will not end up a sucker. In the absence of such motivations, the result is that peace, monetary stability, an open world economy, environmental protection, debt relief, raw material conservation, poverty reduction and world development will be undersupplied.

It has been shown that iterative games of the Prisoners' Dilemma type lead to non-destructive outcomes. The partners learn and adopt mutually beneficial strategies. It has already been shown that we find ourselves between the two extremes of Prisoners' Dilemmas and Coase's outcomes. For several reasons it is harder to reach cooperative agreements in international transactions than in others. There are now many states, and large numbers make agreements more difficult. We do not have a world government that could enforce agreements. Change is rapid, which undermines the basis of stability on which agreements are based. The absence of a hegemonic power also removes the sanctions against breaking the agreement. And all these factors prevent the trust from being built up, which is an essential prerequisite for international agreements.

Examples of Prisoners' Dilemmas on the global scale are ubiquitous. Above all there is the arms race, which, though we have so far avoided a major nuclear war, has contributed to hundreds of minor wars, mostly in the Third World; then there is competitive protectionism, through which each country casts its employment problem onto others; competitive exchange rate movements; research and development wars; investment wars; environmental pollution; the killing of Whales and the debt crisis are only some of the areas in which these battles are fought.

To avoid these traps, coordination and enforcement of policies are needed. But coordination means that each country has to do things it does not want to do. The U.S. has to balance its budget in order to lower world interest rates; Germany has to grow faster, but she does not want to suck in guest workers from Turkey and Yugoslavia; many say Japan should import more, but she does not want to hurt her domestic industries. And so on.

Even Mrs. Thatcher, a powerful advocate of free markets and state minimalism, in a speech to the United Nations in New York on 8th of November 1989, has come to recognize that in order to avoid global warming and coastal flooding, countries that emit carbon dioxide and other gases that trap heat in the atmosphere would have to act together, that restrictions would have to be obligatory, and their aplication would have to be carefully monitored. Any one country acting by itself would be at a competitive disadvantage by having to incur the higher costs of protecting the environment.[13]

6. A global environmental protection agency

Just as in an uncoordinated world each country has an incentive to pour its problem of unemployment, metaphorically, into the yards of others, so does it, literally, cast its muck into the neighbouring fields or into the oceans, the lakes, the atmosphere, the land, or the food chains which are the global commons. Acid rain that kills forests, the emission of chlorofluorocarbons that destroy the ozone layer, the global warming resulting from the burning of fossil fuels, overfishing in common waters, are examples of global abuse that can be stopped only by global agreements that limit national sovereignty.

The domestic environmental problems of rich countries are often in conflict with poverty reduction in developing countries, while the domestic environmental problems of poor countries both arise from, and contribute to, poverty. But the global environmental problems are shared by the whole of humanity and call for global solutions.

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[13] *The New York Times*, 9 November 1989, p. A 17.

The solution to mutually destructive actions pursued by each country separately is the establishment of a global environmental protection agency, with powers of enforcement. Each country, by sacrificing some of its national sovereignty, gains more in the pursuit of its national interests than it would have done, had it continued to act independently.

Such an agency would require substantial finance and powers. A tiny step in this direction was taken in November 1990. 25 industrial and developing countries agreed to establish a Global Environmental Facility (GEF), which will be run jointly by the World Bank, the United Nations Development Programme (UNDP), and the United Nations Environment Programme (UNEP). It started off with a fund of about $ 1.3 billion. A little progress was made at the Rio United Nations Conference on the Environment and Development, which gave strong verbal support to the Facility. Pledges of about $ 2.5 billion a year were made in Rio. This compares with $ 70 billion which the UN said was needed for environmental purposes, and about $ 5 billion which had been predicted.

Initially modest resources will be devoted to providing help in financing programmes and projects that affect the global environment. Four areas have been selected for the operations of the Facility.

1. Protecting the ozone layer. The GEF's work will be coordinated with the implementation of the Montreal Protocol to phase out the use of CFCs, halons, and other harmful gases.

2. Limiting greenhouse gas emissions. The emission of carbon dioxide, CFCs, and methane will be limited, the adoption of cleaner technologies and fuels will be encouraged, as well as reforestation and forestry conservation.

3. Protecting biodiversity. The diversity of species contributes to materials for medicines and industrial products, genetic resources for food production, and the regulation of climatic and rainfall patterns.

4. Protecting global water resources. The Facility will support programmes that encourage planning against oil spills; to abate water pollution, to prevent and clean up toxic waste pollution along major rivers and to conserve water bodies.

Developing countries with GNP per head of less than $ 4000 will be eligible for GEF funding for investment projects and supporting services.

The initial steps towards a Global Environmental Protection Agency should be on very specific issues, such as the Montreal Protocol or the International Whaling Commission. A sharp and narrow focus in the early stages will prevent endless discussion, frustration and acrimony. But the problems of primary concern to the poor people in the developing countries—clean air in the towns, access to safe water and sanitation, the prevention of soil erosion, and population control—are not touched by the Facility. From the point of view of these concerns, the Rio conference was a failure.

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EFFICACY OF FISCAL POLICY UNDER FLEXIBLE EXCHANGE RATES WITH PRICE AND EXCHANGE RATE EXPECTATIONS

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This paper investigates the possibility of whether expansionary fiscal policy turns out to be contractionary when real or nominal wages are fixed in the aggregate supply side. An open economy IS-LM model with an aggregate supply function is assumed. Uncovered interest arbitrage through perfect substitutability of domestic and foreign bonds with perfect capital mobility and rational expectations are also assumed. Under such conditions, it can be shown that an anticipated fiscal policy is ineffective, while an unanticipated fiscal policy is always expansionary, and it is more so under real wage than nominal wage models.

1. Introduction

The efficacy of monetary and fiscal policies in an open economy has been extensively examined in the so-called Fleming-Mundell [Fleming (1962) and Mundell (1963)] model or its extended and variant models. In fact, Marston (1985) wrote that "few studies in international economics have had as much impact on the direction of research as those of Mundell and Fleming". Several interesting aspects have attracted professional attention, and they are broadly classified into two groups; those that have been particularly concerned with (a) a more fully specified supply side [Sachs (1980), Ahtiala (1989), Akiba (1990)] and those with (b) endogenous expectations [Branson and Buiter (1983), Dornbusch and Fisher (1980), Akiba (1990)] [Ahtiala (1989), p. 1481].[1]

Several insightful results, some of them remarkable, obtained from the above literature are succinctly summarized as follows: With endogenous prices, when alternative assumptions are made for the supply of labour being a function of

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[1] However, to my knowledge, Akiba (1990) is the only one in which expectations are endogenized in the model successfully, without any ad hoc assumption such as perfect foresight or similar consideration of special cases.

either money wage or real wage, a fiscal policy is expansionary in a real wage model, but neutral, expansionary, or even *contractionary* in a money wage model.[2] However, if both exchange rates and prices are expected rationally, a fiscal policy is always expansionary, and a money-financed fiscal policy is more so than the bond-financed one.[3]

The purpose of this paper is to scrutinize the effects of fiscal policy under a flexible exchange rate system. To be more specific, we construct a model, with particular emphasis on the aggregate supply and endogenous expectations with respect to exchange rates and prices, to examine the efficacy of fiscal policy. In our model the aggregate supply function is dependent on exchange rates under a certain situation. Since the efficacy of macroeconomic policy for an open economy depends fundamentally on the wage-setting process [Sachs (1980), Ahtiala (1984, 1989)], the nature of the wage-determination process is examined in detail.[4]

Furthermore, short-term international capital movement is not considered in Ahtiala (1989), while it is assumed for the covered interest arbitrage condition to hold in Sachs (1980). Here, we assume perfect substitutability between domestic and foreign bonds and perfect capital mobility. There are several novelties in our analysis that must be mentioned. First of all, rational expectations are properly assumed in this model, and the solutions of endogenous variables are obtained within the assumed model, although expectations mechanisms were discussed at some length from different point of view by Branson and Buiter (1983), and Dornbusch and Fisher (1980). Secondly, but not independent of the first, the rationally expected price and exchange rates are considered in this model. To be more specific, the former is an independent variable in the aggregate demand function, and the latter comes into the uncovered interest parity condition. Thirdly, the model explicitly incorporates the wage-determination process, and the results thus are comparable with those by Sachs (1980) and Ahtiala (1989). Fourthly, the model also considers a countercyclical feedback rule for fiscal policy.

Several interesting conclusions are obtained given our assumptions. First of all, it is shown that an anticipated government expenditure policy is ineffective in stimulating real output. This is a standard result, established in the Fleming-Mundell model under flexible exchange rates. It is shown that this result is robust with respect to different wage-determination processes under rational expectations for prices and the exchange rate.

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[2] Contractionary fiscal policy under a flexible exchange rate is shown to emerge if the income elasticity of the demand for money exceeds unity (Ahtiala (1989). p. 1485). The possibility was also pointed out by Sachs (1980), p. 740,

[3] An alternative specification of the aggregate supply was examined by Sarantis (1986) and Lai and Chang (1989), with special emphasis on oligopolistic pricing. It was shown that the so-called Fleming proposition may be reversed if domestic prices are set by oligopolistic producers, so that fiscal policy may be more effective than monetary policy under a flexible exchange rate system than a fixed exchange rate system. However, if the monetary authorities suspend the sterilizing policy, it can also be shown that the behavior of an oligopolistic markup is irrelevant for determining the relative efficacy of macroeconomic policy under alternative exchange rate systems.

[4] In an oligopolistic pricing model, the aggregate supply function may also depend on the exchange rate, but not on the real domestic output. See, e.g. Sarantis (1986).

Thus, if we can show that an anticipated monetary policy in this framework has an expansionary effect on output, we have the so-called Mundell-Fleming proposition under flexible exchange rates. However, it will be shown that the effect of an anticipated monetary policy is sensitive with respect to different wage-determination processes under rational expectations. To be more specific, while output increases by an anticipated monetary policy when nominal wages are fixed, it does not change by the monetary policy when real wages are fixed.

Our analysis for anticipated policy changes thus shows that the Mundell-Fleming proposition holds when money wages are fixed, but it does not when real wages are fixed. In the latter case, both anticipated monetary and fiscal policies lose their effectiveness in stimulating output.

Our analysis is in contrast with Ahtiala (1989) who pointed out the possibility of contractionary fiscal policy in a money wage model with static expectations, and with Sachs (1980) who showed an expansionary fiscal policy in the real wage model with static expectations. In fact, our conclusion is closer to that of the Mundell-Fleming analysis with respect to an anticipated fiscal policy.

It is also shown that an unanticipated fiscal policy is always expansionary, and it is more so when real wages are fixed than when nominal wages are fixed.

The organization of the paper is as follows: in the next section, the model is constructed. Section III derives solutions with different assumptions of the behavior of spending policy by the government, and rational expectations. Section IV discusses the effects of both anticipated and unanticipated shocks of fiscal policy on real output. The final section V summarizes our main findings.

2. The Model

Our stochastic version of the open economy IS-LM model under flexible exchange rates is contained in equations (1)–(5). The model is adopted, with necessary modification, from a linearized model originally developed by Saidi and Swowoda (1983) and Akiba (1990).[5]

$$p_t = a_0 + a_1 y_t + a_2 e_t + u_t \qquad a_1, a_2 \geq 0 \tag{1}$$

$$y_t = b_0 - b_1(p_t - e_t) - b_2[i_t - (p^e_{t+1} - p_t)] + b_3 g_t + \varepsilon_t \qquad b_1, b_2, b_3 \geq 0 \tag{2}$$

$$m_t = p_t + c_0 + c_1 y_t - c_2 i_t + v_t \qquad c_1, c_2 \geq 0 \tag{3}$$

$$i_t = i^*_t + (e^e_{t+1} - e_t) \tag{4}$$

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[5] For a detailed derivation of the deterministic portion of these equations (1)–(4), See Appendix (A).

$$x_t + j^e = \underset{t-1}{E}\,[x_{t+j} \mid \Omega_{t-1}] \qquad j \geq 0, x = e, p \tag{5}$$

where variables are all in logs; y = the real output, p = the domestic price level, i = the nominal rate of interest, e = the spot exchange rate (expressed as units of the home currency per unit of the foreign currency), g = the net government expenditure on goods and services, and m = the nominal stock of money. An asterisk denotes the foreign counterpart (of i). Ω_{t-1} denotes a set of observations on variables dated $t-1$ and earlier, ε_t, v_t, and u_t are assumed to be serially uncorrelated and independently distributed error terms obeying

$$\underset{t-1}{E}\,[z_{t+j} \mid \Omega_{t-1}] = 0 \qquad z = \varepsilon, v \text{ and } u$$

and having finite variances.

Equations (1) is the aggregate supply function which reflects the wage-determination process of the economy. For $a_2 = 0$, nominal wages are fixed [see Appendix (A)], and the supply is a function of p alone. For $a_2 = 1$, real wages are fixed, and the supply is a decreasing function of the real exchange rate, $e + p^* - p$. Here, the foreign price level is assumed to be constant, and without loss of generality, it is set to zero. The error term u_t, which is assumed to incorporate both domestic and foreign (exchange rate) shocks, makes the aggregate supply schedule shift randomly.

Aggregate demand for domestic products (2) is inversely related to the relative price of domestic to foreign output, $p_t - e_t - p_t^*$, which is the inverse of the real exchange rate, $e_t + p_t^* - p_t$ (where p_t^* was assumed to be zero). The function is also negatively related to the real interest rate, but positively to net government expenditure. The error term ε_t, which is also assumed to incorporate both domestic and foreign (trade) shocks, makes the aggregate demand schedule shift randomly.[6]

Equation (3) is a simple but a standard portfolio schedule. For simplicity's sake and ease of calculation, the demand for money is assumed to depend on income.[7] In equation (4), perfect substitutability between domestic and foreign one-period bonds is assumed, so that they differ with respect to currency denomination only. A strong version of perfect capital mobility is assumed, so that the equilibrium nominal rate of interest can differ from the exogenous i_t^* only by the expected rate of depreciation.[8] The domestic bond market is omitted because of Walras's law. It should be mentioned that, for the sake of simplicity and ease of calculation, all wealth effects are assumed to be hidden in the domestic bond market.

Equation (1)–(4) determine the equilibrium values of p_t, e_t, i_t, and y_t as a function of the time paths of exogenous and predetermined variables, the random errors, u_t, ε_t, and v_t and expectations. To close the model we impose rationality so that the expectations appearing in the system of equations (1)–(4) are linear least squares forecasts conditional on Ω_{t-1}.[9]

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[6] For simplicity's sake, it is assumed that there is no covariation between shocks in the foreign exchange market (u) and those in the international trade market (ε).

[7] For a slightly different specification, see Ahtiala (1989) and Devereux and Purvis (1990).

To determine the equilibrium paths of p, e, and y, solve (1)–(4) for the values of p_t and e_t that clear the output and asset markets. These semi-reduced forms are:[10]

$$p_t = \gamma_0 + \gamma_1 p^e_{t+1} + \gamma_2 e^e_{t+1} + \gamma_3 m_t + \gamma_4 g_t + \gamma_5 u_t + \gamma_6 \nu_t + \gamma_7 \varepsilon_t \tag{6}$$

where:[11]

$$\gamma_1 = b_2\gamma_7, \quad \gamma_2 = c_2\gamma_3 - \gamma_1, \quad \gamma_3 = -[a_2 + a_1(b_1 + b_2)]/D, \quad \gamma_4 = b_3\gamma_7$$

$$\gamma_5 = -[c_2 + c_1(b_1 + b_2)]/D, \quad \gamma_6 = -\gamma_3, \quad \gamma_7 = (a_2c_1 - a_1c_2)/D$$

$$D \equiv -\{a_2 + c_2 + (b_1 + b_2)[a_1(1 + c_2) + c_1(1 - a_2)]\} < 0$$

$$e_t = \delta_0 + \delta_1 p^e_{t+1} + \delta_2 e^e_{t+1} + \delta_3 m_t + \delta_4 g_t + \delta_5 u_t + \delta_6 \nu_t + \delta_7 \varepsilon_t \tag{7}$$

where:[12]

$$\delta_1 = b_2\delta_7, \quad \delta_2 = c_2\delta_3 - \delta_1, \quad \delta_3 = -[1 + a_1(b_1 + b_2)]/D, \quad \delta_4 = b_3\delta_7$$

$$\delta_5 = [1 - c_1(b_1 + b_2)]/D, \quad \delta_6 = -\delta_3, \quad \delta_7 = (a_1 + c_1)/D$$

This completes the description of our model. In the next section rational expectations are assumed to close the model.[13]

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[9] For notational simplicity, we use the notation $\underset{t-1}{E}[x_{t+j}]$, $j \geq 0$ to refer to $E[x_{t+j} \mid \Omega_{t-1}]$. One may argue that, while the asset market can behave in a rational manner, the goods market would behave in a much more adaptive manner (Smith (1987)). However, for the illustrative purpose of this paper, rational expectations are assumed in both markets.

[10] To obtain the reduced forms, i_t^* is set to i^* (constant). Alternatively, i_t^* could be assumed to be $i_t^* = i^* + s_t^*$ where s_t^* is an appropriate error term.

[11] It can be shown that $\gamma_0 = [(c_2\gamma_3 - \gamma_1)i^* + b_0(a_1c_2 - a_2c_2) + (a_0c_2 - a_2c_0) + (b_1 + b_2)(a_0c_1 - a_1c_0)]/D$. It can be easily checked that, as long as $D > 0$, the coefficients γ_1, γ_4, and γ_5 are positive, while γ_2, γ_3, and γ_6 are indeterminate.

[12] It can be shown that $\delta_0 = [(c_2\delta_3 - \delta_1)i^* \; a_0 + c_0 + b_0(a_1 + c_2) + (b_1 + b_2)(a_1c_0 - a_0c_1)]/D$. It can be easily checked that, as long as $D > 0$, the coefficients δ_1 and δ_4 are positive, δ_2, δ_3, and δ_6 are negative, and δ_5 is indeterminate.

[13] Before leaving this section, the following comments are in order. First, e_t and p_t are jointly determined variables depending on the same set of underlying variables, although their dynamic time paths need not be identical. Second, both e_t and p_t depend on the time paths, current and expected of exogenous variables. To see this, it can be shown from (6) and (7) by repeated substitution:

$$\underset{t-1}{E}[p_t] = (\gamma_0 + \gamma_1 i^*)/(1 - \gamma_2) + \gamma_1 \sum_{j=0}^{\infty} \gamma_2^j \underset{t-1}{E}[e_{t+1+j}] + \gamma_3 \sum_{j=0}^{\infty} \gamma_2^j \underset{t-1}{E}[g_{t+j}] + \gamma_4 \sum_{j=0}^{\infty} \gamma_2^j \underset{t-1}{E}[m_{t+j}] \tag{6'}$$

$$\underset{t-1}{E}[e_t] = (\delta_0 + \delta_1 i^*)/(1 - \delta_1) + \delta_2 \sum_{j=0}^{\infty} \delta_1^j \underset{t-1}{E}[p_{t+1+j}] + \delta_3 \sum_{j=0}^{\infty} \delta_1^j \underset{t-1}{E}[g_{t+j}] + \delta_4 \sum_{j=0}^{\infty} \delta_1^j \underset{t-1}{E}[m_{t+j}] \tag{7'}$$

Thus, the rational expectations version of our open economy model embodies the main features of the asset market approach to exchange rate determination.

3. Rational Expectations Solutions

To obtain an explicit solution for p_t, e_t, and y_t, it is necessary to specify the process generating the exogenous variables, m_t and g_t.[14] For the nominal stock of money, it is simply assumed that:

$$m_t = \overline{m} + \theta_t \tag{8}$$

where $\overline{m}$ is a positive constant, and θ_t is an unavoidable random shock for the money supply. The shock is assumed to be serially uncorrelated and independently distributed with zero mean and finite variance. Thus, a change in the stock of money is assumed to follow a random walk process. Because our main concern is the effect of fiscal policy in our open macroeconomy and a comparison of our results with those derived from similar but slightly different models, as briefly stated in the introduction, the following assumption is made with respect to the net government expenditure, g_t:

$$\Delta g_t = g_t - g_{t-1} = \overline{g} + \lambda y_{t-1} + \mu_t \qquad \lambda \leq 0 \tag{9}$$

where μ_t is an unavoidable shock to the net government spending policy. It is also assumed that μ_t is a serially uncorrelated and independently distributed random process with zero mean and finite variance. Thus, the net government spending policy follows a countercyclical feedback rule. It should be mentioned that this countercyclical feedback rule is meaningful only when our open economy attains some target output level designated by the government.[15, 16, 17]

To solve the model we use a familiar method of undertermined coefficients, with the details relegated to the Appendix section (B). Briefly speaking, p, e and y can be written as time invariant functions with respect to the underlying state variables.[18] The market clearing conditions (6) and (7) thus yield the cross equation restrictions implied by rationality.

When nominal wages are fixed, i.e., $a_2 = 0$, the explicit solution for p_t, e_t and y_t are, neglecting constants (except $\overline{m}$ and $\overline{g}$):

$$p_t = \gamma_3{}'\overline{m} + \left[\frac{(b_1 + b_2)(a_1 + c_1 + a_1 c_2) + c_2}{b_2 c_2}\right] y_{t-1} + \gamma_5{}' u_t + \gamma_6{}' v_t + \gamma_7{}' \varepsilon_t + \gamma_3{}' \theta_t + \gamma_4{}' \mu_t$$

---

[14] Note that i_t^* was assumed to be constant, i^*, in the last section.

[15] This point was brought to my attention by). Kamoike.

[16] In Akiba (1990), the government budget constraint of the Blinder and Solow analysis is explicitly considered, noting that government expenditure policies are not independent of monetary policies.

[17] The assumption of countercyclical feedback rule by the government will be relaxed later.

[18] The reason for this lies in the fact that the structure of the model is not expected to change over time.

$$e_t = \delta 3'\overline{m} - \left(\frac{b_3}{b_1}\right)\overline{g} - \left(\frac{b_3}{b_1}\right)g_{t-1} + \delta_5' u_t + \delta_6' v_t + \delta_7' \varepsilon_t + \delta_3' \theta_t + \delta_4' \mu_t \qquad (10)$$

$$y_t = \left(\frac{\gamma_3'}{a_1}\right)\overline{m} + \left[\frac{(b_1+b_2)(a_1+c_1+a_1c_2)+c_2}{a_1b_2c_2}\right]y_{t-1} + \left(\frac{\gamma_5'-1}{a_1}\right)u_t + \left(\frac{\gamma_6'}{a_1}\right)v_t + \left(\frac{\gamma_7'}{a_1}\right)\varepsilon_t + \left(\frac{\gamma_3'}{a_1}\right)\theta_t + \left(\frac{\gamma_4'}{a_1}\right)\mu_t$$

where γ_i' and δ_i' are γ_i and δ_i evaluated at $a_2 = 0$, respectively. For examples,

$$\gamma_3' = a_1(b_1+b_2)/\{(b_1+b_2)[c_1+a_1(1+c_2)]+(1+c_2)\} > 0,$$

and

$$\delta_3' = [1+a_1(b_1+b_2)]/\{(b_1+b_2)[c_1+a_1(1+c_2)]+(1+c_2)\} > 0.$$

Prior to discussing the character of this solution with regard to fiscal policy, the following points should be noted. First of all, the assumption of a change in the nominal stock of money to follow a random walk process leads to anticipated movements in the money supply, so that $E_{t-1}[m_t] = \overline{m}$. The latter in turn affects the actual and anticipated price level in less than proportionately.[19] Secondly, the anticipated movements in the money supply $\overline{m}$ also have a positive impact on e_t, the nominal exchange rate, but the effect is less than proportionately.[20]

Thirdly, some market specific unanticipated shocks have definite impact on p_t, e_t, and y_t. For example, u_t and v_t have a negative impact on y_t, while ε_t has a positive impact on y_t.[21] Fourthly, the solution is independent of λ, the parameter of the countercyclical feedback rule for government spending policy. This is a direct consequence of the solution that p_t does not depend on g_t in this case of $a_2 = 0$.

Fifthly, when real wages are fixed, i.e. $a_2 = 1$, the explicit solution for p_t, e_t, and y_t is:

$$p_t = \left(\frac{1}{1+c_2}\right)\overline{m} + \left(\frac{c_2\Delta_2}{1+c_2}\right)\overline{g} + \left(\Delta_2 - \frac{b_3}{b_2}\right)g_{t-1} + \left(\frac{(1+c_2)[1+a_1(b_1+b_2)]^2 - a_1^2b_2^2}{b_2c_2[1+a_1(b_1+b_2)]}\right)y_{t-1} + \gamma_5'' u_t + \gamma_6'' v_t + \gamma_7'' \varepsilon_t + \gamma_3'' \theta_t + \gamma_4'' \mu_t$$

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[19] $\gamma_3' = a_1(b_1+b_2)/[(b_1+b_2)(a_1+c_1+a_1c_2)+c_2]$, which clearly lies in (0, 1).

[20] $\delta_3' = [1+a_1(b_1+b_2)]/[(b_1+b_2)(a_1+c_1+a_1c_2)+c_2]$, which may be greater or less than unity.

[21] Since our main focal points are the anticipated and unanticipated effects of discretionary policies, the comparative static analysis of the effects of market-specific disturbances (u, ε, v) will be left for interested readers.

$$e_t = \left(\frac{1}{1+c_2}\right)\overline{m} + \left(\frac{c_2\Delta_2}{1+c_2}\right)\overline{g} + \Delta_2 g_{t-1} + \left(\frac{[1+a_1(b_1+b_2)]^2 - a_1^2b_2^2}{b_2c_2[1+a_1(b_1+b_2)]}\right)y_{t-1} + \delta_5''u_t + \delta_6''v_t + \delta_7''\varepsilon_t + \delta_3''\theta_t + \delta_4''\mu_t \qquad (10')$$

$$y_t = -\left(\frac{b_3}{a_1b_2}\right)g_{t-1} + \left(\frac{1+a_1(b_1+b_2)}{a_1b_2}\right)y_{t-1} + \left(\frac{\gamma_5''-\delta_5''-1}{a_1}\right)u_t + \left(\frac{\gamma_6''-\delta_6''}{a_1}\right)v_t + \left(\frac{\gamma_7''-\delta_7''}{a_1}\right)\varepsilon_t + \left(\frac{\gamma_3''-\delta_3''}{a_1}\right)\theta_t + \left(\frac{\gamma_4''-\delta_4''}{a_1}\right)\mu_t$$

where $\Delta_2 \equiv \{(a_1b_2 - a_1b_1c_2 - c_2)\ ([1+a_1(b_1+b_2)]^2\ - a_1^2b_2^2) +\ b_2c_2\ (a_1+c_1)\ [1+a_1(b_1+b_2)]^2\}\ /a_1b_2^2c_2^2\ [1+a_1(b_1+b_2)]\lambda$, and γ_i'' and δ_i'' are γ_i and δ_i evaluated at $a_2 = 1$, respectively.

Note first for this solution that the effect of $\overline{m}$, $1/(1+c_2)$, is exactly the same for p_t and e_t. It is positive, but less than unity. The effect $1/(1+c_2)$ is clearly greater than γ_3', but greater or less than δ_3' in (10). Secondly, the effect of $\overline{g}$ is also exactly the same for p_t and e_t. Thirdly, it can be confirmed that v_t and ε_t have a positive impact on y_t, while u_t has a negative impact on y_t. Fourthly, it is observed that, although λ, the parameter of countercyclical feedback rule for government expenditure policy, affects p_t and e_t through its effect on $\overline{g}$ and g_{t-1}, y_t is independent of λ.

Finally, as a consequence of the preceding observation, it is interesting to examine the case where $\lambda = 0$, i.e., the government does not follow a countercyclical feedback rule with respect to net government spending policy. Thus, a change in net government spending also follows a random walk process. Since solution (10) where a $a_2 = 0$ does not depend on λ, only the case of $a_2 = 1$ is considered. The explicit solution for p_t, e_t and y_t under $a_2 = 1$ and $\lambda = 0$ is:

$$p_t = \left(\frac{1}{1+c_2}\right)\overline{m} + \left(\frac{c_2\Delta_3}{1+c_2}\right)\overline{g} + \Delta_3 g_{t-1} + \left(\frac{(1+c_2)[1+a_1(b_1+b_2)]^2 - a_1^2b_2^2}{b_2c_2[1+a_1(b_1+b_2)]}\right)y_{t-1} + \lambda_5''u_t + \lambda_6''v_t + \lambda_7''\varepsilon_t + \lambda_3''\theta_t + \lambda_4''\mu_t$$

$$e_t = \left(\frac{1}{1+c_2}\right)\overline{m} + \left(\frac{c_2\Delta_3}{1+c_2}\right)\overline{g} + \left(\Delta_3 + \frac{b_3}{b_2}\right)g_{t-1} + \left(\frac{[1+a_1(b_1+b_2)]^2 - a_1^2b_2^2}{b_2c_2[1+a_1(b_1+b_2)]}\right)y_{t-1} + \delta_5''u_t + \delta_6''v_t + \delta_7''\varepsilon_t + \delta_3''\theta_t + \delta_4''\mu_t \qquad (10'')$$

$$y_t = -\left(\frac{b_3}{a_1b_2}\right)g_{t-1} + \left[\frac{1+a_1(b_1+b_2)}{a_1b_2}\right]y_{t-1} + \left(\frac{\gamma_5''-\delta_5''-1}{a_1}\right)u_t + \left(\frac{\gamma_6''-\delta_6''}{a_1}\right)v_t + \left(\frac{\gamma_7''-\delta_7''}{a_1}\right)\varepsilon_t + \left(\frac{\gamma_3''-\delta_3''}{a_1}\right)\theta_t + \left(\frac{\gamma_4''-\delta_4''}{a_1}\right)\mu_t$$

where $\Delta_3 \equiv -b_3\{[1+a_1(b_1+b_2)]^2 - b_2(a_1+c_1)[1+a_1(b_1+b_2)] - a_1^2b_2^2\}/a_1b_2^2[1+a_1(b_1+b_2)]$. Thus, the solution is similar to that of (10′), and the difference is, as expected, through only $\bar{g}$ and g_{t-1}. Because of the latter fact, the actual solution for y_t is exactly the same in (10′) and (10″).

4. The Effects of Fiscal Policy

We are now in a position to go on to the main purpose of this paper, examination of the effects of net government expenditure policy for both the nominal wage and the real wage models. First we examine the effects of anticipated shocks on the domestic output level. It can be observed from equations (10) and (10′) that:

$$\frac{\partial y_t}{\partial g}\,|_{a_2=0} = \frac{\partial y_t}{\partial g}\,|_{a_2=1} = 0 \qquad (11)$$

This result is exactly as expected, and does not depend on the value of λ. As also observed, $\partial y_t/\partial \bar{g} = 0$ in (10″) when $\lambda = 0$. This result, stating that anticipated fiscal policy is ineffective in stimulating real output under flexible exchange rates with perfect capital mobility, complete sterilization, and static expectations, became known by the Mundell-Fleming analysis. If this result is combined with the positive impact of anticipated monetary policy in (10) i.e., $\partial y_t/\partial \bar{m} = \gamma_3'/a_1 > 0$, we have a well-known Mundell-Fleming proposition for (10); an anticipated monetary policy is effective, while an anticipated fiscal policy is ineffective under flexible exchange rates.

However, the result is sensitive with respect to the wage determination process of the economy. If $a_2 = 1$, i.e., the real wages are fixed, an anticipated monetary policy also loses its effectiveness under rational expectations, as observed in equation (10′) (for $\lambda < 0$) and in equation (10″) (for $\lambda = 0$). This difference can be easily accounted for once we recall our present assumption for the wage determination process. When $a_2 = 0$, i.e., money wages are fixed, an exogenous increase in anticipated money supply increases prices given output, causing a decrease in the interest rate through an increase in the real balances. As a result, the exchange rate depreciates because of capital outflow. This depreciation has both a stimulating effect on the aggregate demand and a discouraging effect on the aggregate supply in our model. When $a_2 = 0$, the latter discouraging effect disappears, and hence the final outcome is an increase in output.

The situation is, however, different for $a_2 = 1$, i.e., real wages are fixed. After an increase in an anticipated money supply, the aggregate supply is discouraged by a depreciation as discussed above through equation (1). The stimulating effect of the increase in anticipated money supply on the aggregate demand is completely offset by a discouraging effect on the aggregate supply by the equal change in p_t and e_t, and thus there is no change in output because of rational expectations (see (10′) and (10″)). Thus, although our model rigorously proves the Mundell-Fleming proposition for $a_2 = 0$, it fails to hold for $a_2 = 1$. As pointed out by Devereux and Purvis (1990, p. 1208), it is true that output is unaffected by anticipated fiscal expansion under flexible exchange rates with rational expectations. For $a_2 = 1$, output is also unaffected by monetary expansion under flexible exchange rates and rational expectations.[22]

Next, the effect of unanticipated shocks of the net government spending policy is examined.[23] It is reflected in the coefficient of μ_t. Thus, it can be shown that:[24]

$$\frac{\partial y_t}{\partial \mu_t}\Big|_{a_2=1} > \frac{\partial y_t}{\partial \mu_t}\Big|_{a_2=0} > 0 \tag{12}$$

This means that an unanticipated shock is more expansionary in the real wages model than in the nominal wages model, in the sense that the impact effect is stronger. The result is also understandable, because the unanticipated change is $(\gamma_4'' - \partial_4'')/a_1$ for $a_2 = 1$. As a result of a change in net government expenditure, the aggregate demand is stimulated and it is reflected in γ_4''/a_1. The aggregate supply is also stimulated because of exchange rate appreciation, and the effect is reflected in δ_4''/a_1 for $a_2 = 1$. However, for $a_2 = 0$, the latter effect by exchange rate appreciation does not exert upward pressure on the domestic output level, and so output is not stimulated through this channel in the nominal wages model. Thus, inequality (12) follows.

Since our concern in this paper is with the controversy around the efficacy of fiscal policy in an open economy with different wage-determination processes, comparative statics consideration with respect to p_t and e_t is omitted. It should be mentioned, however, that the nominal exchange rate may also appreciate as a result of an anticipated increase in net government expenditure when the government does not adopt a countercyclical feedback rule, as Sachs (1980) and Ahtiala (1989) observed.[25]

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[22] Another effect of anticipated change in the net government spending, g_{t-1}, on y_t must be briefly mentioned. In the money wages model ($a_2 = 0$), it is ineffective ($\partial y_t/\partial g_{t-1} = 0$) because of the simple reason that, while an increase in g_{t-1} causes an appreciation of the nominal exchange rate, this appreciation will not exert a downward pressure on p_t (see equation (1) when $a_2 = 0$). Thus, an increase in the aggregate supply is not expected. On the other hand, in the real wages model ($a_2 = 1$), it is contractionary (i.e., $\partial y_t/\partial g_{t-1} < 0$). The reason for this lies in the fact that an appreciation due to an increase in g_{t-1} exerts a downward pressure on p_t, making real wages increase. Thus, the real output is discouraged through equation (1).

[23] Unanticipated shocks do not depend on our assumption of whether or not the government follows a countercyclical feedback rule for the net government spending policy.

[24] Since μ_t is stochastic, its partial derivatives should be interpreted as an increase in the mean value of μ_t, keeping its variance unchanged.

[25] A necessary condition for this is $[1 + a_1(b_1 + b_2)]^2 - a_1^2 b_2^2 > b_2(a_1 + c_1)[1 + a_1(b_1 + b_2)]$. We will not discuss this condition, since no greater insight can be gained from it.

5. Conclusions

In this paper I started with a question about the efficacy of fiscal policy in an open economy with different wage determination processes. My main concern is whether or not fiscal policy can be contractionary under flexible exchange rates, as argued by Ahtiala (1989, p. 1485), when investment decision depends on the expected rate of inflation, and international capital movement depends on the expected rate of depreciation. In order to take these expectations components explicitly into consideration, I employ a rational expectations mechanism to close the open economy IS-LM model with the aggregate supply function.

It was shown that the anticipated fiscal policy is ineffective in stimulating output under flexible exchange rates. This is a standard result derived from the Mundell-Fleming models. Our analysis have shown that the result is robust with respect to different wage determination processes. We also examined the effect of an anticipated monetary expansion on output. While anticipated monetary policy was shown to be expansionary for the money wages model, it loses its effectiveness completely for the real wages model. The key mechanism lies in a relatively simple fact that, while an anticipated increase in government spending tends to appreciate the exchange rate, that in monetary expansion tends to depreciate it. This opposite effect on the exchange rate has different implications for the aggregate supply through the different wage determination processes. When money wages are fixed, there is no effect on the aggregate supply, but a stimulating (contractionary) effect is observed when real wages are fixed for government expenditure (monetary) policy.

For unanticipated shocks, it was shown that they are expansionary under the real and the nominal wages models. The effect was, however, shown to be stronger under the real wages model than under the money wages model, for the same reason discussed for the anticipated shocks. That is, the resultant exchange rate appreciation exerts an upward pressure on the aggregate supply when real wages are fixed, and so the final effect on output is larger than when real wages are fixed.

APPENDIX

Appendix (A)

This section develops some of the algebra deriving the model (1)–(4). Since equations (3) and (4) are standard, we will derive only equations (1) and (2).

To derive the aggregate supply function (1) (see Sachs (1980)), it is assumed that the real output is produced by the neoclassical production function $F(K, L)$ with fixed capital, K, but variable labor, L. Firms are assumed to operate under conditions of perfect competition, and employ labor according to $W/P = \partial F/\partial L$, where W is the money wage rate. Simple duality theory enables us to write real output as $Y = Y(W/P, K)$, and $\partial Y/\partial(W/P) < 0$ and $\partial Y/\partial K > 0$. Log-linearizing, and ignoring the constant capital stock, we have:

$$y = -\beta(w - p) \tag{A-1}$$

where $y = \ln Y$, $w = \ln W$, and $p = \ln P$.

With domestic consumption of both home and foreign goods, a true price index may be defined by $p_0 \equiv \xi p + (1 - \xi)(p^* + e)$, where we assume $p^* = 0$ for simplicity.

A simple from of two different wage hypotheses is assumed as:

$$w = w_0 + \zeta p_0 \tag{A-2}$$

and nominal wages are fixed at w_0 if $\zeta = 0$, while real wages are fixed at w_0 if $\zeta = 1$.

Substituting (A-2) into (A-1), and making use of the definition of p_0, we have:

$$p = [w_0/(1 - \zeta\xi)] + [1/\beta(1 - \zeta\xi)]y + [\zeta(1 - \xi)/(1 - \zeta\xi)]e \tag{A-3}$$

Letting $w_0/(1 - \zeta\xi) = a_0$, $1/\beta(1 - \zeta\xi) - a_1$, and $\zeta(1 - \xi)?(1 - \zeta\xi) = a_2$, (A-3) then is the same as equation (1) in the text. Note that $a_2 = 0$ for the nominal wages model ($\zeta = 0$), while $a_2 = 1$ for the real wages model ($\zeta = 1$).

To derive equation (2), we make use of a method developed by Bhandari (1982, 1983), and utilized by Lai and Chang (1989). The equilibrium condition for the goods market is given by:

$$Y = C + I + G + X = D + I + G \tag{A-4}$$

where C, I, G, X and D denote consumption, investment, net government expenditures, balance of trade, and $D \equiv C + X$ in real terms, respectively. We assume D, I, and G are all positive (a negative case can also be easily handled; see, e.g. Lai and Chang (1989), p. 471). (A-4) can be rewritten as:

$$Y = \exp(\ln D) + \exp(\ln I) + \exp(\ln G) \tag{A-4$'$}$$

Taking logarithm of (A-4′) yields:

$$\ln Y = \ln[\exp(\ln D) + \exp(\ln I) + \exp(\ln G)] \tag{A-5}$$

A first-order Taylor approximation of (A-5) gives:

$$\ln Y = (D_0/y_0(\ln D - \ln D_0) + (I_0/Y_0)(\ln I - \ln I_0) + (G_0/Y_0)(\ln G - \ln G_0) + \ln Y_0 \qquad \text{(A-6)}$$

where a suffix 0 signifies the initial value of the relevant variable. Collect all constant terms and define $D_0/Y_0 = \mu_1$, $I_0/Y_0 = \mu_2$, and $G_0/Y_0 = \mu_3$ and (A-6) then becomes:

$$y = \mu + \mu_1 d + \mu_2 k + \mu_3 g \qquad \text{(A-7)}$$

where $y = \ln Y$, $d = \ln D$, $k = \ln I$, $g = \ln G$ and μ is the aggregate constant term.

We assume that the functional form of d and k are:

$$d = d_0 + d_1(c + p^* - p) \qquad \text{(A-8)}$$

$$k = k_0 + k_1[i - (p^e_{+1} - p)] \qquad \text{(A-9)}$$

Substituting (A-8) and (A-9) into (A-7), and making use of our assumption of $p^* = 0$, we have:

$$y = (\mu + \mu_1 d_0 + \mu_2 k_0) + \mu_1 d_1(e - p) + \mu_2 k_1[i - (p^e_{+1} - p)] + \mu_3 g \qquad \text{(A-10)}$$

Letting $\mu + \mu_1 d_0 + \mu_2 k_0 = b_0$, $\mu_1 d_1 = b_1$, and $\mu_2 k_1 = -b_2$, redefining $\mu_3 = b_3$, and adding a stochastic disturbance ε, (A-10) then is the same as equation (2) in the text.

Appendix (B)

This section develops some of the algebra underlying the results in section III. To obtain an explicit solution for p_t, e_t, and y_t in terms of exogenous and predetermined variables, we consider writing p_t and e_t as unknown functions of state variables:

$$p_t = \pi_{10} + \pi_{11} m_{t-1} + \pi_{12} g_{t-1} \pi_{13} y_{t-1} + \pi_{14} \mu_t + \pi_{15} \nu_t + \pi_{16} \varepsilon_t + \pi_{17} \theta_t + \pi_{18} \mu_t \tag{B-1}$$

$$e_t = \pi_{20} + \pi_{21} m_{t-1} + \pi_{22} g_{t-1} + \pi_{23} y_{t-1} + \pi_{24} u_t + \pi_{25} \nu_t + \pi_{26} \varepsilon_t + \pi_{27} \theta_t + \pi_{28} \mu_t \tag{B-2}$$

This trial solution makes use of the fact that we assume that the linear structure of the model and the stochastic specification (8) and (9) are not expected to change over time. Given (B-1) and (B-2) it is a simple matter to calculate the expression for $\underset{t-1}{E}[p_{t+1}]$ and $\underset{t-1}{E}[e_{t+1}]$ which appear in the market clearing conditions, equations (6) and (7). If the trial solution in (B-1) and (B-2) is an equilibrium, then substituting from (B-1) and (B-2) for expectations into (6) and (7) must yield identities in the state variables. The resulting identities are (neglecting constants):

$$\begin{aligned}
a_1\pi_{11} &= (\gamma_1\pi_{13} + \gamma_2\pi_{23})\pi_{11} - a_2(\gamma_1\pi_{13} + \gamma_2\pi_{23})\pi_{21} \\
a_1\pi_{21} &= (\delta_1\pi_{13} + \delta_2\pi_{23})\pi_{11} - a_2(\delta_1\pi_{13} + \delta_2\pi_{23})\pi_{21} \\
\pi_{12} &= (\gamma_1\pi_{12} + \gamma_2\pi_{22} + \gamma_4) + (\gamma_1\pi_{13} + \gamma_2\pi_{23})(\gamma_{12} - a_2\pi_{22})/a_1 \\
\pi_{22} &= (\delta_1\pi_{12} + \delta_2\pi_{22} + \delta_4) + (\delta_1\pi_{13} + \delta_2\pi_{23})(\pi_{12} - a_2\pi_{22})/a_1 \\
\pi_{13} &= \lambda(\gamma_1\pi_{12} + \gamma_2\pi_{22} + \gamma_4) + (\gamma_1\pi_{13} + \gamma_2\pi_{23})(\pi_{13} - a_2\pi_{23})/a_1 \\
\pi_{23} &= \lambda(\delta_1\pi_{12} + \delta_2\pi_{22} + \delta_4) + (\delta_1\pi_{13} + \delta_2\pi_{23})(\pi_{13} - a_2\pi_{23})/a_1 \\
\pi_{14} &= \gamma_5, \quad \pi_{15} = \gamma_6, \quad \pi_{16} = \gamma_7, \quad \pi_{17} = \gamma_3, \quad \pi_{18} = \gamma_4 \\
\pi_{24} &= \delta_5, \quad \pi_{25} = \delta_6, \quad \pi_{26} = \delta_7, \quad \pi_{27} = \delta_3, \quad \pi_{28} = \delta_4
\end{aligned} \tag{B-3}$$

Solving (B-3) for π_{ij} ($i = 1, 2; j = 1, \ldots, 8$) yields:

For $a_2 = 0$

$$\pi_{11} = \pi_{21} = 0, \quad \pi_{12} = 0, \quad \pi_{22} = -b_3/b_2$$

$$\pi_{13} = [c_2 + (b_1 + b_2)(a_1 + c_1 + a_1c_2)]/b_2c_2, \quad \pi_{23} = 0$$

and the remaining coefficients are as in (B-3) evaluated at $a_2 = 0$.

For $a_2 = 1$

$$\pi_{11} = \pi_{21} = 0, \quad \pi_{12} = -b_3/b_2 + \Delta_1, \quad \pi_{22} = \Delta_1$$

$$\pi_{13} = \{(1 + c_2)[1 + a_1(b_1 + b_2)]^2 - a_1^2b_2^2\}/b_2c_2[1 + a_1(b_1 + b_2)].$$

$$\pi_{23} = \{[1 + a_1(b_1 + b_2)]^2 - a_1^2b_2^2\}/b_2c_2[1 + a_1(b_1 + b_2)].$$

where $\Delta_1 = \{(a_1b_2 - a_1b_1c_2 - c_2)([1 + a_1(b_1 + b_2)]^2 - a_1^2b_2^2) + b_2c_2(a_1 + c_1)\;[1 + a_1(b_1 + b_2)]^2/a_1b_2^2c_2^2[1 + a_1(b_1 + b_2)]\lambda$, and the remaining coefficients are as in (B-3) evaluated at $a_2 = 1$.

Substituting back into (B-3) yields the expressions for p_t and e_t appearing in equations (10) and (10′).

To obtain the solution for y_t, simply note that from equation (1), we have (neglecting constants, except $\overline{m}$ and $\overline{g}$):

For $a_2 = 0$

$$y_t = (p_t - a_2e_t - u_t)/a_1$$

$$= \left(\frac{\gamma_3'}{a_1}\right)\overline{m} + \left[\frac{(b_1 + b_2)(a_1 + c_1 + a_1c_2) + c_2}{a_1b_2c_2}\right]y_{t-1} + \left(\frac{\gamma_5' - 1}{a_1}\right)u_t + \left(\frac{\gamma_6'}{a_1}\right)v_t + \left(\frac{\gamma_7'}{a_1}\right)\varepsilon_t + \left(\frac{\gamma_3'}{a_1}\right)\theta_t + \left(\frac{\gamma_4'}{a_1}\right)\mu_t$$

For $a_2 = 1$

$$y_t = (p_t - a_2e_t - u_t)/a_1$$

$$= -\left(\frac{b_3}{a_1b_2}\right)g_{t-1} + \left[\frac{1 + a_1(b_1 + b_2)}{a_1b_2}\right]y_{t-1} + \left(\frac{\gamma^{5''} - \delta_5'' - 1}{a_1}\right)u_t + \left(\frac{\gamma_6'' - \delta_6''}{a_1}\right)v_t + \left(\frac{\gamma_7'' - \delta_7''}{a_1}\right)\varepsilon_t + \left(\frac{\gamma_3'' - \delta_3''}{a_1}\right)\theta_t + \left(\frac{\gamma_4'' - \delta_4''}{a_1}\right)\mu_t$$

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CHARACTERISTICS OF TRADE AND NEED FOR DEVELOPMENT OF TRADE POLICY IN A MARKET ECONOMY

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1. Introduction

Trade policy is an economic policy restricted to a trade, and as such, it is defined as an industrial or sectoral policy. Although we are discussing a need for development of trade policy as a specific part of economic policy, we must say that trade policy is in direct, organic connection with the overall economic policy. Trade policy, as a nonseparable part of the overall economic policy is developed in relatively small number of countries. Reason for this we may find in understanding that, by its nature, economic policy is concerned with the overall economy and that, as such, it should not have specific impact on individual industries. Moreover, as it is usually argued, this is the case because all industries are equally important and there should be no discrimination among them. Even if there are some political issues, it is because of specific characteristics and contents of some industries that are not present in general policy. Furthermore, advocates of laissez-faire argue that, in market economies, there is no need for direct intervention in trade, but regulation should be conducted indirectly through intervention in production and consumption. It is known that real world markets are not those of perfect competition, that some processes are too slow, and that all sectors cannot be left to market forces only. Therefore, there is a need for a trade policy that will be designed according to the socio-economic system, development of trade, and the level of conflicts in the overall trade system that should be reduced.

2. Characteristics of Trade as Subject of Trade Policy

2.1 *Concept and role of trade in the economy*

Contemporary economy is characterized by tendency of stronger concentration and specialization of production and, at the same time, with the increasing distancing and diversification of consumption, which is complicating the role of trade. For conducting the trade policy one should know characteristics, aims and content of the trade industry. This is specially needed in formulating trade policies for regulating trade functions and trade development.

Trade is one of the most important industries in contemporary economies. The one that is, within social division of labor, concerned with trade of goods and services. In contemporary economies, most of the producers are not selling their goods and services to final consumers. Between producers and consumers there are lots of specialized intermediaries who ease selling of goods and services for producer and are also enabling consumers to fully satisfy their needs. Trade of goods and services may be direct or indirect. Indirect is through independent and specialized intermediaries—trade companies, in this case goods are circulating from producers to trade companies and from them to other industries or final consumers. Relationship between indirect and direct trade most usually depends on the development of the division of labour and specialization, and on characteristics of groups of goods and individual goods. Within the frame of developed division of labor, most of the trade is done by specialized intermediary—trading company. From the point of view of the economy, the role of the intermediary is to transform produced assortment into assortment demanded by consumers. Producers produce narrow assortment in large quantities and producers demand wide assortment in small quantities. Within the trade system, intermediary buys large quantities from numerous producers and transform them in small quantities and wide assortment, according to the demand of consumers, thus equilibrating demand and supply (Kotler and Armstrong 1987). Moreover, differences between the level of concentration and dispersion of production/consumption ratio are also requiring intermediaries.

What we consider as a content of trade is determining its concept. In a broad sense, concept of trade is determined by its task in the overall economy, and that is commodity trade between particular parts of the economy (Gablers 1981). Similar is also Seyffert's definition (1972) according to which trade is economic activity of exchanging commodities between different economic agents, ultimately between consumers and producers. In the act of commodity exchange Seyffert see trading activity, so, according to him, any act of commodity exchange is trade. When emphasizing category of economic subjects that are professionally buying commodities because of re-sale, he introduces the concept of trade in narrow sense, i.e. selling buyed unchanged commodity as an independent profession. What results from both definitions is that trade is activity of commodity exchange among its agents. When talking about activity of commodity exchange we are talking about "functional" trade, and when talking about agents of this exchange than it is a "institutional" trade. Today, concept of trade is frequently substituted with the concept of distribution. This is a consequence of macroeconomic tasks and functions of trade that are increasingly mixing with other activities and it is difficult to separate them. Trade is more and more taking over production functions, and producers and consumers are performing some trade functions. Therefore, distribution includes activities that are necessary for commodities to come from production to consumption, regardless of agents. Distribution should not be identified with physical distribution, because it does not perform only physical activities, as transport and storing of commodities, but also activities of changing property, as for example legal, promoting and financial activities. Also, concept of distribution should not be identified with distribution in a sense of administrative distribution of commodities. Today, concept of trade should be interpreted broader than it is determined by above definitions, because apart from exchange of touchable commodities trade is also exchange of services.

Trade has differentiated into retail and wholesale trade, according to its tasks. Retail trade is usually defined as an activity that includes all activities connected with selling commodities or services to final consumers for their personal use or household use. Retail trade is not only buying goods in a shop, but also buying a meal in a restaurant, buying a cinema ticket etc. Retail trade is selling commodity in quantities needed for consumption of an individual household. Wholesale trade is activity that includes all activities connected with selling commodities or services to organizations or individuals for re-sale or use in business. Wholesale transactions are performed in quantities larger than individual household needs. Wholesale is useful for producers and retail trade when it performs some activities more efficiently. Usually small producers do not have enough capital to develop their own selling department, and for producers with enough capital it is also better to invest in activities in which they are specialized than to do retail trade by themselves. Also, for retailers with more product lines, it is better to buy assortment they need from wholesaler than to buy it directly from individual producers.

As trading activity is not the only one performed by trading firms, one firm is very rarely performing only one trading activity. Today, when trade is using strategy of internationalization as a path to growth, increasing number of firms is performing trade only outside national borders. When trade is faced with trading barriers (customs and other) we are talking about foreign trade. Foreign trade is a consequence of differences in production possibilities, economies of scale, and differences in preferences (see: Samuelson 1992). Trade within countries or between countries is done according to comparative advantages, i.e. trading is done with commodities or services that are produced relatively or comparatively more efficiently. Everyone should specialize in activity in which he or she has comparative advantage.

2.2 *Economic characteristics and organizational forms of trade*

Smith (1970) gave his contribution to understanding of the role of market mechanism. He explained patterns how supply and demand influence price oscillations, and impact of trade on rise in production and consumption. By doing so he described basic functions of the trade. His scientific approach was that he derived trade functions from the theory of the division of labor. According to him, consequence of the division of labour is that more and more needs are satisfied through exchange of surpluses of own labour for products of others labor. Consequently, everybody lives through exchanging and, thus, becomes trader and society becomes trading society. Economic functions found by Smith were used by later economists for further detailing. Different systems of trade functions were built. Despite differences in systems of trade functions all functions have three common characteristics: they use scarce resources, usually they are better performed through specialization and they can be switched between subjects (Kotler 1986). Usual, but wrong assumption is that costs of trade with commodities could be reduced by eliminating intermediaries in the trading system. Through increasing division of labor and specialization a number of intermediaries will also increase. This belief is based on the fact that specialized intermediaries are performing some functions more economically than non-specialists. It is sure enough that trade specialized in trade functions must perform those functions more economically than both producers and consumers. Until someone is performing some functions more economically than anyone else, its intermediary existence is economically justified. Therefore, reducing of costs should be regarded only through rentability of performing some functions within the trading system, and not through number of intermediaries. Trade as a specialized economic activity that is connecting two ends of the process of reproduction—production and consumption is organizing trade process most rationally and most efficiently. Despite existence of different trade functions there are no major differences in their essence. Through them, trade is influencing harmonizing of supply and demand, and, thus, it has also impact on stabilizing of prices in the market. So, its role in the overall economy emerges from its tasks and functions in the process of exchange. Success in performing trade functions depends on socio-economic system, on the role of trade in a system, and on level of its development and organization. Only developed, organizationally and technically modernized trade may produce positive effects on production and consumption. Importance of trade is increasing with the level of economic development. Changes in supply and demand are also resulting in changes in trade functions in a way that they are becoming more numerous and more complex, and socially and economically more needed. Efficiency of trade depends on its adaptability to demographic, cultural, economic, social and technological changes in its environment. All these changes force trade to find new, more efficient forms of organization. We are witnessing permanent changes in trade structure. Many innovations in trade are result of higher productivity as well as of finding solutions for high costs and prices. Such innovations in retail trade are partly explained with a theory of "the wheel of retailing" (McNair) and May 1978). In that theory explanation of development of the trade is based on a concept of life cycle of the trade institution. According to this concept establishing and development of new forms of trade has its characteristic dynamism. All trade institutions has certain development stages in their life cycle. Wheel of retailing is showing emerging situations during various years of retailing. According to this theory new retailers are entering into a market with a strategy of price competitiveness. Low prices and margins are obtained through lower quality of services, limited assortment and less attractive locations, thus competing with conventional stores. In the longer run, along with better business results, retailers are improving services and taking better locations. New services and more costly locations are increasing costs which should be compensated through increased prices. In such a situation they are becoming more alike conventional stores that they have had eliminated from the market. Therefore, these retailers are becoming more vulnerable to new retail traders who are entering the market with price competitiveness, and on the other side they must compete with traditional stores and specialized shops. Once the retailer has broaden the scope of its services it is difficult to step back and it is not unusual that it will go bankrupt. Cycle starts again when new types of retailers are developing through price competitiveness. This process has a form of spiral movement, i.e., movement with increasing level of rationality and efficacy. "Wheel of retailing" theory explains only growth of some organizational forms as for example: stores, discount shops and supermarkets, while it does not explain growth of those organizational forms that are starting business with high costs and high margins as, for example, wending machines. Since the beginning of development of trade, regularity of constant shortening of the life cycle has been observed. New forms of trade are constantly emerging but their life cycle is increasingly shorter. Stores needed 100 years to reach the maturity, supermarket 30 years, discount shop 20 years, and superspecialized shop only 10 years. Development of new organizational forms of trade has led to increasing concentration that is particularly expressed through expansion of selling areas, rise of economies of scale, diminishing density of selling places, and diminishing role of small and independent traders. As a opposite process to concentration, since fifties, cooperation of small and middle firms is strengthening to improve their position at the market. In contemporary market economies there is a high level of diversification of the trade organizational structure. Diversification could be seen through a fact that there is a large number of different organizational forms of trade. Differences in various countries are in representation of individual trade institutions and in the level of integration or concentration of trading subjects. Diversification is more pronounced in retailing than in wholesale. In developed economies, retailing is most usually organized through four basic forms: small and independent retailers, consumer associations, corporate chains and contract chains.

Small and independent producers are dominating the structure of retailing organizations. In West European countries they count for 75% of all retail shops and 50% of the total number of shops, while their share in actual trade is significantly less.

Consumer associations are retailing firms owned by consumers, consumers pay yearly membership and participate in the profit according to actual purchase. They have been established with intention to give more strength to individuals when they act as members of association, specially where local retailers are charging high prices or are selling low quality products. Corporate chains are based upon principle of multifilial organization. Corporate chain consists of two or more shops owned by the same owner, that are selling similar assortment, have central directorate, purchase and selling department. They could be found in any type of retail operations (supermarkets, discount shops, stores). Contract chains are concurrent reaction of independent retailers to corporate chains. They are emerging in the form of voluntary chains, retail associations and franchises.

Already this simple overview of tasks of trade, economic functions of trade and usual organizational forms of trade in developed market economies is showing enough of the complexity of trade activity, and, thus, a complexity of problems faced by creators of trade policy.

3. Trade Policy Development Problems

Trade policy is a part of total economic policy of a country. i.e. in trade, the principles of socio-economic system, representing legal institutions of trade policy, have to be applied. A commitment to trade system would mean that trade must function according to conditions of free play of economic laws and trade policy has to comply to these conditions.

Trade policy, being a part of economic policy within which trade activities are modified and is subject to system of measures and instruments, regulating trading activities in order to reach predefined goals.

Trade policy is well developed in relatively small number of countries, because there often is the question whether the aims, which are implied by trade policy, are not realized through other fields of economic policy. In some countries, trade policy is neither separately analyzed as a subject of scientific analyses, nor is the institutional political activity—the activity according to economic branches, but functional activity. Thus, the trade policy is added to or supposed consistent with economic policy.[1] In most such arguments, it is assumed that there are no problems concerning trade, which couldn't be solved by a market regulatory system and policy of preserving and initiating competition.

The growing conflicts which need to be controlled impose, in market economies, the need for intensive creation of trade policies. Mostly, those are the conflicts between consumers which are trying to find optimal solution for meeting their diversified needs, and trade which is trying to have the most efficient use of its resources. Conflicts in trade system are also growing: between different methods of selling, between enterprises of different sizes, the organisational forms and levels of trade organization. Besides, the conflicts between local authorities and trade are emerging. Therefore, trade is bound to stop the emergence of certain conflicts and remove or reduce the existing ones.

3.1 *The objectives of trade policy and relations between them*

The more marketised the economy is, more trade policy is involved in economic policy and vice versa. In such situation, the objectives of trade policy and economic policy are the same. In certain countries, certain objectives have different importance, because of the aims of the governing political party, existing structure of economy, impacts and preferences of certain politico-economic groups etc. Based on systematization made by Krischen et al. (1964) and Frank (1980), the most important economic objectives may be classified in two levels as follows:

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[1] Such opinion is indirectly supported in the research of Oehler (1974), well-known German economist, which equals trade policy to policy of ordering, structural policy and competition.

The highest economic objectives

1. Optimal satisfying of needs
2. General equilibrium

Additional economic objectives

Mostly short-term:

1. Full employment
2. The stability of prices
3. Improvements of Balance of Payments position

Mostly long-term:

1. Economic growth
2. Improvements in allocation of factors of production
3. Satisfying common needs
4. Improvements in national income and welfare distribution
5. Stability of economic structure
6. Efficient competition

Most of these objectives have more or less positive impacts on functioning and the development of trade. When the objectives of trade policy are taken as a part of these objectives of general economic policy then, instead of aiming for more efficient competition, the aim of trade policy becomes just maximum contribution of trade to more efficient competition as a whole. On the basis of characteristics of socio-economic system, the tasks of trade, the process of structural changes of trade and emerging conflicts, the objectives of trade policy are defined in order to ensure optimal fulfilment of the functions of trade. Because of the conflicts between objectives, it is difficult to fulfil them all. In developed market economies, the advantage is mostly given to the trade-economies aspect, or preserving competition. In countries where independent trade policy is developing, as the infrastructural policy to improve the functioning and development of the economy as a whole, following objectives are emphasised (Nieshchlag and Kuhn, 1980, Lovreta, 1986):

—preserving of competition
—free entry for new enterprises in the market
—stability of prices
—growing the efficiency of trade
—founding of small—and middle-size independent units
—better education in trade
—protection of consumers
—environmental protection, etc.

Preserving of competition and struggle against disabling and constraining of competition is the most important problem of trade policy in market economies. The efficient competition is mostly ensured through direct measures against throat-cutting competition, over-concentration and forbidding of the vertical integration of prices for well-known products. This aim is also connected with the attempt for more rational and efficient trade. Ensuring the free entry to the market for a new enterprise, the stability of prices and growing efficiency are seldom regulated by improving competition and forbidding constraints on competition.

The preservation and development of small—and middle-sized trade enterprises is made possible by direct prohibition of further expansion of big trade complexes. The controls of supermarket development in Belgium and hyper-market development in France (Royer's Law 1974), as well as in Germany (Baunutzugsverordnung, the law which regulates the opening of big general non-specialised markets) are well known. The protection may be made through direct help to retailers, so that they can remain in competition with the wholesalers. Such help is seldom made through better loan conditions, various programmes of education and initiation of cooperation with other traders.

Furthermore, the important problem of each trade policy is a problem of personnel training for trade. The changes in trade and its environment are intensifying the need for better trained personnel. The size of trade firms and shops are growing as well as the specialization and thus, the obligations and their complexity. The number of new products on the market is also growing, and consumers are searching for additional information and advices. It is therefore obvious that well qualified staff is needed. The problem is trying to be solved through financial supports to the education centres, universities and research institutes.

The consumer protection is a new phenomenon. Much more complex relations between trading subjects requires measures which would both be adequate to the trading needs and consumer wishes, as well as initiate self-organization and active role of consumers in the process of selling of goods and services. In the last few years, the trade policy is more involved in solving the environmental problems. The main reason for this is the growing quantities of industrial waste.

All listed objectives of trade policy are intersecting and are inseparable. These can be added, excluded or competitive. Along with these three basic relations, two more can be added: identity and neutrality. Identity means that, in detailed analysis, the objectives are contextually not different, while neutrality means that the realization of one of the objectives has no influence on realization of one or more objectives (Streit and Umbach, 1984). The use of the instruments for one objective has different impacts on other objectives. The impacts are positive in cases of complementarity, none in the case of neutrality, and negative in the case of conflict. The conflicting situations are more often real, while harmony is rare.

3.2 *The basic fields and assets of trade policy*

There are many fields of possible activities of certain assets of trade policy. It is possible to exclude some of them which are in direct relation with functioning and development of trade, e.g. competition, establishing of trading firms, constructing selling and warehousing capacities, rationalisation, efficiency and reorganisation of trade system, staff education and social conditions.

The rules of competition are often regulated through acts which prohibit certain contracts and acts with a negative impact on the market. For floating of trade firms, the acts usually regulate the staff, technical, health and hygienic conditions for trading activities. The constructing of trade capacities is regulated through plans of urban development and spatial-plans and through regulation of construction sites. In the field of rationalisation, education and social environment, the impact is made through fiscal and monetary policy instruments.

In order to achieve the objectives, trade policy may act through market mechanism or through constraints of its automatism. or replace it with some other mechanism. In attainment of set objectives trade policy uses instruments and measures of economic policy. The instrument within certain parameters can be sticked to, controlled or regulated by bearers of economic policy. The measures of economic policy are used or changed so as to obtain one or more of the defined objectives. The instruments are often classified as instruments of fiscal policy, monetary policy, pricing policy, foreign exchange and currency policy, income policy and direct controls policy. What combination of the instruments will be used shall depend on the characteristics of the economic system of the country. The instruments which are acting through market mechanism are called the instruments of the indirect control because the objectives are fulfilled indirectly, by defining the scope within which the market activities are present. The instruments which are constraining the market mechanism are called the instruments of direct control because the objectives are fulfilled directly. Depending on whether the control initiates or forbids the activity, its impact is positive or negative. The main instrument of regulating the trade are trade laws, while other regulations can be regarded as additional instruments.

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GENESIS OF INFLATION IN INDIA—THEORIES AND EMPIRICAL EVIDENCE

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Against the backdrop of the theoretical framework of the genesis of inflation, we have estimated, with the method of Ordinary Least Squares (OLS), an econometric model for inflation in India for a sample space of 29 years spanning form 1961–62 to 1989–90. The model was corrected for the problem of autocorrelation using Cochrane—Orcutts iterative procedure and the Beach—Mackinnon's Full Maximum Likelihood (FML) method. The variables like personal disposable income and the one year lagged narrow as well as broad money supply were found to be significant at only 10 per cent level of significance. However, in some cases, the broad money supply variable was found to be significant at 5 per cent level of significance. The other variables such as exchange rate, wage rate and interest rate were found have statistically insignificant influence on inflation. The highly significant (at 1 per cent level) dummy variable indicated the susceptibility of inflation to the exogeneous shocks of weather abberations and hence the supply side factors.

One of the most important and major thrusts of the Planning system in India has been the containing of inflation which has become an 'immortal menace' since the Second Five Year Plan adopted with the ambitious objective of attaining high rate of growth through the Mahalanobis model. The deflationary effects of First Five Year Plan were completely neutralized with an almost equal and opposite change (+4.2 per cent) in prices in the Second Five Year Plan. The upsurge in prices[1] remained unabated in the Third Plan (+7.4 per cent), Three Annual Plans (+5.0 per cent), Fourth Plan (+9.7 per cent), Fifth Plan (+1.9 per cent), Annual Plan (1979–80) (+17.1 per cent), Sixth Plan (+6.9 per cent) and Seventh Plan (+5.3 per cent).

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The views expressed in the article are strictly the original views of the author and not of Institution he is associated with.

[1] The Plan-wise growth rates (r) of prices (P) were computed on the basis of the semi-logarithmic trend line regression equation specified by:

$$\log P = \alpha + \beta_t$$

where $r = (\text{Antilog}\,\hat{\beta} - 1) \times 100$

The time variable 't' follows an arithmetical progression series starting with one for the initial year, 2 for the second year and so on and so forth for each plan period.

In view of the continuous and sustained rise in prices in India, the present study endeavours to analyse the underlying exogenous factors postulated, inter alia, in the Classical, Keynesian and Monetarist frameworks. Accordingly the theoratical framework for the genesis of inflation (Section-I) is couched in an econometric model (Section-II) so as to extract certain conclusions (Section-III) for a suitable policy prescription.

Section-I

Genesis of Inflation—An Overview of Theoratical Framework

The intricably multi-causal character of inflation and the obstreperous Classical-Keynesian-Monetarist debate, make it difficult to unequivocally identify and isolate the different causes of Inflation.

1. CLASSICAL MODEL

The Classical Model of inflation enshrined in the popular Fisherian equation of exchange, mechanically, establishes a direct and equi-proportionate relationship between money (M) and prices (P) at full employment equilibrium level of output (Y) and numerically constant velocity of money (V). In other words:

$$MV = PY \tag{1.1}$$

The logarithmic transformation and rearrangement of Fisherian equation of exchange (1.1) yields:

$$\log P = \log M + \log V - \log Y \tag{1.2}$$

Taking the first partial derivative of equation (1.2) with regard to (w.r.t.) time (t), we have:

$$\frac{1}{P}\frac{\partial P}{\partial t} = \frac{1}{M}\frac{\partial M}{\partial t}$$

or

$$\frac{M}{P}\frac{\partial P}{\partial M} = 1 \tag{1.3}$$

$$\because\ Y = \overline{Y}, \qquad \therefore\ \partial(\log Y)/\partial t = 0 \tag{i}$$

$$\because\ V = \overline{V}, \qquad \therefore\ \partial(\log V)/\partial t = 0 \tag{ii}$$

The Unitary money-elasticity of prices nomenclatures the Classical Quantity theory as a 'Theory of Inflation', rather than a 'Theory of Real Income Determination'.

The Classicals myopically viewed the role of money as a medium of exchange only and asserted that the inflation is uniquely (only) determined by the rate of growth of money supply and hence is purely a monetary phenomenon. An increase in money supply causes the real money balances (M/P) to outstrip the desired level. In a bid to reduce the excess real money balances to the desired level, the

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Bar (—) on the variable indicates that the Variable Under reference is given or constant.

economic units resort to spending, thereby resulting in an increase in demand over the full-employment equilibrium level of output. The process continues till the excess balances reduce to the desired level and the prices rise proportionately to money supply.

2. KEYNESIAN MODEL

Keynes' (1940) 'Inflationary Gap' approach premised on the prevalent conditions in the 'goods market', scuttles the significant relationship between money and prices as promulgated in Classicals' 'Money market' approach. The Keynesian inflationary gap defined as the excess of aggregate demand for consumption and investment goods over the equilibrium level of output, is determined not uniquely by the growth rate of money supply, but mainly by the fiscal forces. The tax concessions, subsidies, pump priming, optimistic enterpreneurial expectations etc. can stimulate investment (I) and the increased ex-gratia payments can encourage consumption (C). The consequential upward shift in the aggregate '$C+I$' function would generate what is termed as the 'inflationary gap'. However, an increase in money supply operating through its impact on the rate of interest and real balances, can also be one of these factors affecting the shift in the '$C+I$' function.

3. MONETARIST MODEL

Monetarists, the revivalists of classical quantity theory, of course, in a refined fashion, view the inflation as always and everywhere a monetary phenomenon and hence prescribe for the regulation of only money supply as an anti-inflationary measure. An increase in money supply in excess of capacity level of output, would result in excess demand and hence the inflation, as the nominal income rises faster than real output growth. The money supply is, thus, an exogenous variable and hence the inflation-money supply link is unidirectional. Moreover, the monetarists argue not only that the variations in money supply cause systematic variations in money income, but also that these variations are primarily in prices, rather than in real income component.

In the long run, the economy converges to Friedman/Phelps 'Natural Rate of Unemployment (NRU)' equilibrium at which the effects of monetary (and fiscal) policies on the equilibrium level of output and employment at best remain sterilized. However, in the short run, these policies may affect the real variables like output and employment when inflation is unanticipated. In such case, the role of short-run stabilization policies cannot be undermined. Thus, the monetarists' doctrine, unlike the classical quantity theory, recognised the role of money in affecting real income and employment at least in the short run.

However, the recent advances in monetarism reveal that in the 'rational expectational regime', the systematic and predictable monetary (and fiscal) policies are ineffective even in the short run and as such there is no difference between short run and long run. The monetarists, therefore, argue that since the stabilization policy is futile, it should be abandoned and the economic system would be stable, if left alone. Friedman argued for a 'Monetary Rule', such as "Let the money supply grow at 'X' per cent per year, instead of having a stabilization policy that alters the money supply in response to recently observed events".

International Transmission of Inflation

In the mechanism of international transmission of inflation, the Keynesians assign an insignificant role to money supply but the pivotal role to 'demand effects' which permeate accross the national boundaries through the operation of the popular "Foreign Trade Multiplier" and hence the generation of income. Contrarily the monetarists'[2] super structure sketches different scenario under different exchange rate regimes. The equilibrium value of exchange between two currencies, in monetary approach, reflects the purchasing power parity. The price level in terms of domestic currency (P^d) is, therefore, equal to the product of world price level in terms of foreign currency (P^w) and the exchange rate (r). Symbolically:

$$P^d = rP^w \tag{1.4}$$

or

$$\text{Log } P^d = \text{Log } r + \text{Log } P^w \tag{1.5}$$

Apparently, in an open economy, world prices (P^w) and the policy variable exchange rate (r) are the exogenous variables and hence the causation runs from r and P^w to P^d.

Under the Bretton-Woods-IMF fixed exchange rate regime which prevailed during 1946–1971, the exchange rate was kept constant (*i.e.* $r = \overline{r}$). In such case, the first partial derivative of equation (1.5) yields the Unitary World price elasticity of domestic prices i.e.

$$\frac{1}{P^d}\frac{\partial P^d}{\partial t} = \frac{1}{P^w}\frac{\partial P^w}{\partial^t} \qquad \Bigg| \quad \begin{array}{r} \therefore \;\; r = \overline{r} \\ \because \;\; \partial\,(\text{Log } r)/\partial t = 0 \end{array}$$

or

$$\frac{P^w}{P^d}\frac{\partial P^d}{\partial P^w} = 1 \tag{1.6}$$

Thus, under fixed exchange rate regime, the domestic rate of inflation is determined not by the domestic money supply but uniquely by the world price level which, in turn, is conditioned by the growth rate of world money supply. Any temporary excess demand for goods engendered by an increase in domestic money supply fails to cause domestic inflation as it (excess demand) is quickly 'Siphoned Off' by purchases from international market as well as through the

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[2] The Monetarists' 'Monetary Approach to Balance of Payments' states that the money supply (MS) consists of domestic monetary base (B) and the foreign exchange reserves (R). Symbolically:

$$MS = B + R$$

quick operation of the price-arbitrage[3] mechanism. The monetarists, therefore, argue that in such a scenario, it is difficult to detect a stable, close and positive relationship between excess demand and inflation i.e. the Phillips Curve.

The establishment of floating exchange rate, with the break-down of Bretton-Woods System, ensures the independence of domestic monetary and fiscal policies. The imbalance between the demand and supply of foreign exchange is resolved by the movements in exchange rate. When the domestic prices are hold stable ($P^d = P^{-d}$), the flexible exchange rate absorbs the distortionary effects of world prices. Accordingly, the rearrangement and first partial derivative of equation (1.5) w.r.t. time (t) yields:

$$\frac{1}{r}\frac{\partial r}{\partial t} = -\frac{1}{P^w}\frac{\partial P^w}{\partial t} \qquad \left| \qquad \begin{array}{l} \because\ P^d = P^{-d} \\ \therefore\ \partial(\log P^d)/\partial t = 0 \end{array} \right.$$

or

$$\frac{P^w}{r}\frac{\partial r}{\partial P^w} = -1 \tag{1.7}$$

Evidently, the inflationary effects of increase in world prices are reflected in the depreciation of exchange rate. The flexible exchange rate, thus, acts as an 'automatic stabiliser' or a 'shock absorber' and insulate the domestic variables like income, inflation and rate of interest from the stochastic shocks of world variables. It may be remarked that the exchange rate instability is a symptom of instability in the domestic and global economy. If the instability is not adsorbed by exchange rate movements, it will be reflected elsewhere in the economy (variations in interest rate and money supply). Thus, flexibility must exist either in exchange rate or in the domestic economic variables.

However, the practical validity of the theoratical and mechanical proposition (1.7) and hence the efficacy of flexible exchange rate in insulating the domestic inflation from world inflation, is caricatured by the ardent antagonists of flexible exchange rate. The depreciation of exchange rate, initially making import goods more expensive, ultimately result in a rise in general price level in the domestic economy. In case the "Ratchet Effect" is at work, the exchange rate depreciation would produce its full inflationary impact on the price level whereas an appreciation will not have similar effect in the downward direction as the prices and wages are rigid in the downward direction. Thus, the flexible exchange rate also cannot avoid the inflationary impact on the economy, especially when there is a depreciation in the exchange rate.

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[3] Arbitrage implies the simultaneous purchase and sale of an item to take advantage of a price difference among different markets. If, for a particular commodity, different prices prevail in different countries, then the demand will decrease in the high price country and increase in the low price country so as to take advantage (make profits) of the situation. In the process, the prices will be equalized internationally. It may be made amply clear that arbitrage does not eliminate changes in prices, it simply makes a specific price the same in different markets at any stipulated time. However, the arbitrage presumes that the markets are unencumbered by Government controls and restrictions.

Structuralists' Model

The Structuralists School which originated in the wake of inflation in Latin American Countries, view inflation as a supply side phenomenon. The premature ambitious endeavour of under developed countries for industrialisation in the wake of population pressure, unbalanced growth, supply inelasticities, lack of investment habits etc. result in inflationary pressures in the affected sectors. These inflationary pressures are transmitted to other sectors, resulting in a general price rise in the economy. Moreover, productivity differentials in the wake of persistently uniform nominal wage rates in different sectors, result in wage-productivity gap which exerts an upward pressure on prices.

Scandinavian Model

The Scandinavian School used the structural model to explain the International Transmission of Inflation and asserted that in a two sectors (exposed and sheltered), small and open economy, the 'exposed sector' is a price-taker in the international market and hence the inflation in that sector is determined by the world inflation rate. The money wages in the exposed sector (ES) are equivalent to the labour productivity plus the inflation rate. As the wages in both the sectors become equal through the process of bargaining, the inflation is implicitly transmitted to the sheltered sector (SS). Accordingly, the general price level which is the weighted average of sectoral price levels, also increases. Any productivity differentials in both the sectors, would result in a divergence of general price level from the world price level. The Scandinavian model of inflation can be epitomised in terms of the following equation:

$$P^d = P^w + \alpha_S(\lambda_{ES} - \lambda_{SS}) \tag{1.8}$$

Where P^d = domestic prices, P^w = World Prices, α_S = Share of sheltered sector in Gross National Product (GNP) and $(\lambda_{ES} - \lambda_{SS})$ the Productivity gap or differential.

However, the Scandinavian model fails to provide full blown explanation for the phenomenon of inflation, as it ignores the role of demand side factors in the determination of prices in the sheltered sector.

Cost—Push Theory

The modern cost-push theories which are the refinement of the earlier pre-war cost-push theories, generally assign passive role to money supply and hence view the inflation as determined by a host of non-monetary and supply-oriented cost-push factors independently of price expectations and state of excess demand. The principal cost-push factors entering the inflationary process are the monopoly power, trade Union Militancy, increase in labour costs, competitive struggle for relative income shares, labour and capital immobilities and resultantly the wage-price rigidities. The stochastic shocks like crop failure and the oil price rise by the Organisation of Petroleum Exporting Countries (OPEC) etc. are the typical cost-push factors entering the inflationary process.

Section-II

The Model

For an empirical verification of the pedagogic propositions, an econometric model of stochastic specification has been estimated. The general specification of the model is given by:

$$\dot{P}_t = \alpha + \beta_i \dot{Y}_t + \beta_2 \dot{M}_t + \beta_3 \dot{M}_{t-1} + \beta_4 N\dot{E}R_t + \beta_5 RTD_t + \beta_6 \dot{W}_t + \beta_7 D_t + U_t \qquad (2.1)$$

In model (2.1), α and β_i's $[i = 1, 2, 3, \ldots 7]$ are the parameters to be estimated and U_t is the stochastic disturbance term which accounts for the influence of variables excluded from the model and follows the usual Gaussian assumptions. The definitional details of the variables used in the model are given in Appendix-2.1. It may be mentioned that in view of the problem of multicollinearity as manifested by the 'Zero Order Correlation Matrix', all the variables (except D_t and RTD_t) are measured in terms of not their levels but their ratios[3] which are symbolised by the respective dots (.) thereon. The data on the variables have been culled out from the Reserve Bank of India (RBI) publications viz. Report on Currency and Finance and RBI Bulletin, Central Statistical Organisation (CSO) publication like National Accounts Statistics (NAS) and Government of India (GOI) publication viz. Economic Survey.

The expected signs of the 'impact multipliers' are as follows:

$$\beta_i > 0, \qquad [i = 2, 3, 4, 6, 7]$$

$$\beta_i < 0, \qquad [i = 1, 5]$$

The model (2.1) has been estimated with the method of Ordinary Least Squares (OLS) for a sample period of 29 years spanning from 1961–62 to 1989–90. Alternative specifications of the model were estimated but only the equations with 'good fit' are reported in the study.

It may be remarked that the narrow money (NM) supply mainly performs the medium of exchange function while the broad money (BM) supply serves the store of value function of money. In view of this, both the concepts of money supply (*M*) are used so as to analyse their separate influence on inflation. Similarly, the income variable has been taken in terms of gross (*YG*) as well as

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[4] In econometric analysis, percentage change and the ratio form data makes no difference except for the difference in the 'intercept' of the equation. For instance, the growth rate (*g*) of any variable '*Z*' can be written as:

$$gz = \frac{\Delta z_t}{Z_{t-1}} = \frac{Z_t - Z_{t-1}}{Z_{t\ -1}} = \frac{Z_t}{Z_{t-1}} - 1$$

where '*Z*' stands for *P*, *NM*, *BM*, *YG*, *YD*, *NER* and *W* alternatively.

Thus, the data taken in terms of the ratio of current year to the previous year level will affect only the 'intercept' by minus one (i.e. –1) as compared to that taken in terms of the growth rates. In view of this, we have taken all the variables (except interest rate (*RTD*) and dummy variable (D_t)) in terms of the ratio of current year figure to the previous year figure.

personal disposable income ($\dot{YD}$). The dummy variable has been used to capture the effect of stochastic shocks engendered by droughts, on inflation.

Analysis of Results

The OLS estimates of the alternative specifications of model (2.1) are given in Table 2.1. It is apparent from equation (1) that the regression coefficient of $\dot{BM}_{t-1}$ is dimensionally strong (0.73) and statistically significant at 5 per cent level of significance. However, the regression coefficient of $\dot{BM}_t$ is having an unexpected sign, but it can be ignored as it is statistically insignificant even at 10 per cent level of significance. The regression coefficient of dummy variable (D_t) is found to be highly significant at 1 per cent level of significance. The impact multipliers of all other exogenous variables like $\dot{YG}_t$, $\dot{NER}_t$, RTD_t and $\dot{W}_t$ are found to be dimensionally weak and statistically insignificant.

TABLE 2.1

THE OLS ESTIMATES FOR PRICES IN INDIA (PERIOD: 1961–62 TO 1989–90)
(DEPENDENT VARIABLE: P_t)

Independent Variables	Regression Coefficients			
	Equation-1	Equation-2	Equation-3	Equation-4
Intercept	+0.6421 (1.40)	+1.1342** (2.52)	+0.1368 (0.35)	+0.4816 (1.14)
$\dot{NM}_t$	—	—	+0.1891 (1.39)	+0.1247 (0.93)
$\dot{NM}_{t-1}$	—	—	+0.4840* (3.53)	+0.3695** (2.49)
$\dot{BM}_t$	−0.3335 (0.96)	−0.4288 (1.43)	—	—
$\dot{BM}_{t-1}$	+0.7260** (2.44)	+0.5526*** (2.06)	—	—
$\dot{YG}_t$	−0.2235 (0.98)	—	−0.1180 (0.56)	—
$\dot{YD}_t$	—	−0.5731** (2.60)	—	−0.3847 (1.66)
$\dot{NER}_t$	+0.0593 (0.53)	+0.0797 (0.82)	+0.0426 (0.43)	+0.0607 (0.65)
RTD_t	−0.0100 (1.23)	−0.0034 (0.47)	−0.0087 (1.69)	−0.0064 (1.26)
$\dot{W}_t$	+0.1920 (0.63)	+0.3004 (1.19)	+0.2824 (1.13)	+0.3754 (1.64)
D_t	+0.0974* (4.01)	+0.0745* (3.21)	+0.0950* (4.39)	+0.0807* (3.64)

Test Statistics				
$\overline{R}^2$	0.70	0.77	0.76	0.79
F	8.92	12.61	11.89	13.92
DW	1.34	1.33	1.82	1.78
SEE	0.0375	0.0326	0.0334	0.0312
Mean	1.08	1.08	1.08	1.08
CV	3.47	3.02	3.09	2.89

Notes:

1. Figures in parenthesis are t-values.
2. *Significant at 1 per cent level of significance.
3. **Significant at 5 per cent level of significance.
4. ***Significant at 10 per cent level of significance.
5. CV: Coefficient of variation.

The substitution of YG_t by YD_t, substantially increased the explanatory power ($\overline{R}^2 = 0.77$) of the model (see Equation-2). The regression coefficient of YD_t is dimensionally strong (–0.057) and statistically significant at 5 per cent level of significance. The regression coefficient of BM_{t-1} became dimensionally weak (0.55) and statistically significant at lower (10 per cent) confidence interval. The dummy variable D_t continues to be highly significant at 1 per cent level of confidence. The other exogenous variables like BM_t, NER_t, RTD_t and $\dot{W}_t$ are found to have dimensionally weak and statistically insignificant influence on inflation.

The substitution of BM_t by NM_t improved the explanatory power of the reapective specification of the model. The regression coefficient of NM_{t-1} is dimensionally strong (0.48) and statistically highly significant at 1 per cent level of significance (equation-3). The dummy variable D_t is found to have a statistically highly significant (at 1 per cent level) impact on inflation. The regression coefficients of all other independent variables included in the model are dimensionally weak and statistically insignificant.

The substitution of YG_t by YD_t marginally improved the explanaory power ($R^{-2} = 0.79$) of the model (equation-4). The dummy variable D_t continues to be highly significant at 1 per cent level of confidence. The regression coefficient of NM_{t-1} became dimensionally weak (0.37) and statistically significant at lower (5 per cent) level of confidence. The other expianatory variables viz. NM_t, YD_t, NER_t, RTD_t and $\dot{W}_t$ are found to have dimensionally weak and statistically insignificant impact on inflation.

However, the DW statistics of the estimated equations fall in inconclusive range and hence it becomes difficult to draw any inference regarding the absence or existence of autocorrelation in the residuals and accordingly the efficiency of regression coefficients. In view of this, we have used the Cochrane-Orcutt ($C–O$) iterative procedure to correct the model for the problem of autocorrelaticn. It may be remarked that the $C–O$ procedure has been applied only to equation (4) (Table-2.1) which is a better fit as compared to equation (3). In equations (1 and

2), the crucial variable $\dot{BM}_t$ carried an unexpected sign and hence these equations were not subjected to the autocorrelation corrections. The problem of autocorrelation is of first order nature. The second order autocorrelation is conspicuously absent as the Breusch-Godfrey NR^2 statistics, which has been obtained by regressing the OLS residuals (U_t) of equation (4) against the original vectors of independent variables and the residuals lagged by as many periods as the order of serial correlation suspected (second in our case), is found to be statistically insignificant. In other words:

$$NR^2 \quad (N=25) \sim \chi^2 \quad (K=8)$$

$$Cal\ NR^2 = 1.90 < tab.\ \chi^2_{0.05} = 27.59$$

After having confirmed the absence of second order autocorrelation, we have proceeded to correct the model (i.e. equation-4) for first order autocorrelation. Accordingly, we have transformed the specification of equation (4) into the following form:

$$\begin{aligned}(\dot{P}_t-\hat{\rho}\dot{P}_{t-1}) = {} & \alpha(1-\hat{\rho})+\beta_i(\dot{NM}_t-\hat{\rho}\dot{NM}_{t-1}) \\ & +\beta_2(\dot{NM}_{t-1}-\hat{\rho}\dot{NM}_{t-2})+\beta_3(\dot{YD}_t-\hat{\rho}\dot{YD}_{t-1}) \\ & +\beta_4(\dot{NER}_t-\hat{\rho}\dot{NER}_{t-1})+\beta_5(RTD_t-\hat{\rho}RTD_{t-1}) \\ & +\beta_6(\dot{W}_t-\hat{\rho}\dot{W}_{t-1})+\beta_7(D_t-\hat{\rho}D_{t-1})+\varepsilon_t \qquad (2.4)\end{aligned}$$

Alternatively model (2.4) can be expressed in the following form:

$$\begin{aligned}P_t^* = {} & \alpha^*+\beta_1 NM_t^*+\beta_2 NM_{t-1}^*+\beta_3 YD_t^*+\beta_4 NER_t^*+\beta_5 RTD^* \\ & +\beta_6 W_t^*+\beta_7 D_t^*+\varepsilon_t \qquad (2.4)\end{aligned}$$

Where $P_t^*=(\dot{P}_t-\rho\dot{P}_{t-1}),\ NM_t^*=(\dot{NM}_t-\rho\dot{NM}_{t-1}),$

$NM_{t-1}^*=(\dot{NM}_{t-1}-\rho\dot{NM}_{t-2}),\ YD_t^*=(\dot{YD}_t-\rho\dot{YD}_{t-1}),$

$NER_t^*=(\dot{NER}_t-\rho\dot{NER}_{t-1}),\ RTD_t^*=(RTD_t-\rho RTD_{t-1}),$

$W_t^*=(\dot{W}_t-\rho\dot{W}_{t-1})$ and $D_t^*=(D_t-\rho D_{t-1})$ and $\alpha^*=\alpha(1-\rho)$

The $\hat{\rho}=0.11$ is estimated from $U_t=\rho U_{t-1}+V_t$, U_t being the residuals of equation (4).

The OLS estimates of the first C–O iteration indicates that D_t^* is highly significant at 1 per cent level of significance while NM_{t-1}^* is significant at 5 per cent level of significance (Table 2.2). The regression coefficients $\hat{\alpha}^*$ and $\hat{\beta}_i$'s $[i=1, ,2\ 3, \ldots 7]$ of the transformed model (2.4) (i.e. iteration –1) were used in the *original data matrix* of independent variables to compute the error term (ε_t) for second iteration. In other words:

TABLE 2.2

THE *OLS* ESTIMATES FOR PRICES UNDER COCHRANE-ORCUTT (*C–O*) ITERATIVE PROCEDURE

(PERIOD: 1962–63@ TO 1989–90)

(DEPENDENT VARIABLE: P_t^*)

Independent Variables	Regression Coefficients			
	Iteration-1	Iteration-2	Iteration-3	Iteration-4
	$\hat{\rho} = 0.10$	$\hat{\rho} = 0.16$	$\hat{\rho} = 0.17$	$\hat{\rho} = 0.18$
Intercept	+0.63396 (1.40)	+0.66456 (1.45)	+0.56218 (1.48)	+0.56072 (2.49)
NM_t^*	+0.07952 (0.57)	+0.06919 (0.49)	+0.06490 (0.46)	+0.06272 (0.45)
NM_{t-1}^*	+0.32665** (2.16)	+0.31274*** (2.07)	+0.30712*** (2.03)	+0.30431*** (2.01)
YD_t^*	–0.39062 (1.72)	–0.39338*** (1.75)	–0.39468*** (1.77)	–0.39537*** (1.77)
NER_t^*	+0.06527 (0.71)	+0.6494 (0.73)	+0.06483 (0.73)	+0.06478 (0.73)
RTD_t^*	–0.00634 (1.18)	–0.00631 (1.14)	–0.00630 (1.12)	–0.00630 (1.11)
W_t^*	+0.32833 (1.39)	+0.32798 (1.40)	+0.32780 (1.41)	+0.32771 (1.41)
D_t^*	+0.08162* (3.55)	+0.08125* (3.50)	+0.08111* (3.48)	+0.08104* (3.47)
Test Statistics				
$\overline{R}^2$	0.78	0.78	0.78	0.78
F	12.48	12.37	12.34	12.32
DW	1.87	1.92	1.94	1.95
SEE	0.0313	0.0312	0.0312	0.0312
Mean	0.97	0.92	0.90	0.89
CV	3.23	3.39	3.47	3.51

Notes:

1. Figures in parenthensis are t-values.
2. The star (*) on the regression coefficient refers to the statistical significance while that on the variable indicates the transformed specification.
3. *Significant at 1 per cent level of significance.
4. **Significant at 5 per cent level of significance.
5. ***Significant at 10 per cent level of significance.
6. *CV*: Coefficient of variation.
7. @: First observation is lost while taking the transformation.
8. The transformed endogenous and exogenous variables are defined as:

$P_t^* = (P_t - \rho P_{t-1})$, $NM_t^* = (NM_t^* - \rho NM_{t-1})$, $NM_{t-1}^* = (NM_{t-1} - \rho NM_{t-2})$,
$YD_t^* = (YD_t - \rho YD_{t-1})$, $NER_t^* = (NER_t - \rho NER_{t-1})$,
$RTD_t^* = (RTD_t - \rho RTD_{t-1})$, $W_t^* = (W_t - \rho W_{t-1})$ and $D_t^* = (D_t - \rho D_{t-1})$

$$\varepsilon_t = \dot{P}_t - [\hat{\alpha}^* + \hat{\beta}_1 \dot{NM}_t + \hat{\beta}_2 \dot{NM}_{t-1} + \hat{\beta}_3 \dot{YD}_t + \hat{\beta}_4 \dot{NER}_t + \hat{\beta}_5 RTD_t + \hat{\beta}_6 \dot{W}_t + \hat{\beta}_7 D_t] \tag{2.5}$$

The vector-autoregressive process was again repeated to calculate the value of rho as:

$$\varepsilon_t = \pi_0 + \rho\varepsilon_{t-1} + e_t \tag{2.6}$$

The estimated form of equation (2.6) is given by:

$$\varepsilon_t = 0.000060 + \underset{(0.77)}{0.15830}\varepsilon_{t-1} \tag{2.7}$$

On the basis of the value of $\hat{\rho} = 0.16$, the specification of equation (4) was again transformed on the lines of model (2.4) for second iteration. The estimated form of the transformed model indicated that NM_{t-1}^* and YD_t^* were significant at 10 per cent level while D_t^* was highly significant at 1 per cent level of significance (Iteration-2, Table-2.2). The rest of the variables included in the model were found to be statistically insignificant.

The estimated parameters of the transformed model (Iteration-2, Table-2.2) were again used in the *original data matrix* of independent variables on the lines of relationship (2.4) so as to work out the error term. The error term so obtained was regressed on its own lagged values to obtain the value of $\hat{\rho}$ for the third transformation of the specification of basic equation (4) (Table-2.1). The iterative procedure was carried out upto the fourth iteration. The regression coefficients of iteration-4 can be considered to be the efficient estimates. The dummy variable D_t^* is found to be highly significant at 1 per cent level of significance while the NM_{t-1}^* and YD_t^* are significant at lower (10 per cent) level of confidence (Table-2.2).

However, the *C–O* procedure not only requires a large number of iterations but also results in a loss of degree of freedom as the first observation is lost while taking the necessary transformation. Besides, it is difficult to infer as to whether the likelihood function is also global maximum (Beach and Mackinnon, 1978). In view of these limitations, we have also used the Beach-Mackinnon's, Full Maximum Likelihood (FML) procedure to solve the problem of autocorrelation. Unlike *C–O* procedure, the FML method makes use of all the observations and no observation is lost in the process of taking necessary transformation. This helps to improve the efficiency of the parameters, especially when the sample size is small and number of constraints (i.e. exogenous variables) large.

The stationarity condition required for the use of ML procedure was verified by estimating the following set of equations based on the residuals (U_t) of the basic equation (4).

$$U_t = \lambda + \rho U_{t-1} + V_t \tag{2.8}$$

$$U_t = \lambda + \rho_1 U_{t-1} + \rho_2 U_{t-2} + V_t^1 \tag{2.9}$$

If the error terms (U_t) are stationary in nature, the value of $\hat{\rho}$ should lie within the unit circle. In other words:

$$|\hat{\rho}| < 1, \qquad |\hat{\rho}_1| < 1, \qquad |\hat{\rho}_2| < 1$$
$$|\hat{\rho}_1| + |\hat{\rho}_2| < 1, \qquad |\hat{\rho}_1| - |\hat{\rho}_2| < 1$$

The estimated form of the foregoing equations (2.8) and (2.9) is as follows:

$$U_t = \underset{(0.03)}{0.00088} + \underset{(0.47)}{0.09769}\, U_{t-1} \tag{2.10}$$

$$U_t = \underset{(0.05)}{0.00124} + \underset{(0.51)}{0.110197}\, U_{t-1} - \underset{(1.08)}{0.23106}\, U_{t-2} \tag{2.11}$$

Apparently, all the necessary conditions for the stationary nature of error term are satisfied.

Now rewriting the specification of equation (4) in matrix form, we have:

$$Y_{nxi} = X_{nxk}\beta_{kxi} + U_{nxi} \tag{2.12}$$
$$[N = 25, K = 8]$$

In the Beach-Mackinnon's procedure, the first observation of the dependent and independent variables is saved by taking different transformation i.e. by multiplying them by $\sqrt{1-\rho^2}$. In other words:

$$Y_1^* = Y_1\sqrt{1-\rho^2} \quad \text{and} \quad X_1^* = X_1\sqrt{1-\rho^2}$$

The transformation for the second observation onwards is similar to that of C–O procedure i.e. $Y_t - \rho Y_{t-1}$ for the dependent variable and $X_t - \rho X_{t-1}$ [$t = 2, 3, 4, \ldots 25$] for the independent variables.

From model (2.12), making use of the foregoing system of transformation, the following log—Likelihood function (L) was developed and maximized:

$$L = Const.\ \tfrac{1}{2}\log(1-\rho^2) - \frac{N}{2}\log[(1-\rho)^2(Y_1 - X_1\beta)^2 + \sum_{t=2}^{N}(Y_t - X_t\beta - \rho Y_{t-1} + \rho X_{t-1}\beta)^2] \tag{2.13}$$

The Beach-Mackinnon's procedure alternatively maximizes the log—Likelihood function (2.9) with regard to (w.r.t.) β keeping ρ constant and then w.r.t. ρ keeping β constant. Thus, differentiating the function (2.9) w.r.t ρ, putting them equal to zero and rearranging the terms, we have the following first-order condition:

$$f(\rho) \equiv \rho^3 + a\rho^2 + b\rho + c = 0 \tag{2.14}$$

where:

$$a = -(N-2)\Sigma e_t e_{t-1}/[(N-1)(\Sigma e_{t-1}^2 - e_1^2)]$$
$$b = [(N-1)e_1^2 - N\Sigma e_{t-1}^2 - \Sigma e_t^2]/[(N-1)(\Sigma e_{t-1}^2 - e_1^2)]$$
$$c = N\Sigma e_t e_{t-1}/[(N-1)(\Sigma e_{t-1}^2 - e_1^2)]$$

TABLE 2.3

THE OLS ESTIMATES OF PRICES UNDER BEACH-MACKINNON'S FULL MAXIMUM LIKELIHOOD (FML) PROCEDURE (PERIOD: 1961–62 TO 1989–90) (DEPENDENT VARIABLE: P_t^*)

Independent Variables	Regression Coefficients Iteration-1 $\hat{\rho} = 0.22$	 Iteration-2 $\hat{\rho} = 0.20$
Intercept	+0.71024 (1.53)	+0.69693 (1.51)
NM_t^*	+0.05388 (0.38)	+0.05833 (0.41)
NM_{t-1}^*	+0.29305*** (1.93)	0.29868*** (1.97)
YD_t^*	–0.39836*** (1.81)	–0.39682*** (1.79)
NER_t^*	+0.06457 (0.74)	+0.06467 (0.74)
RTD_t^*	–0.00630 (1.08)	–0.00630 (1.09)
W_t^*	+0.32727 (1.42)	+0.32750 (1.41)
D_t^*	+0.08077* (3.43)	+0.08091* (3.45)
Test Statistics		
$\overline{R}^2$	0.77	0.77
F	12.27	12.30
DW	1.99	1.97
SEE	0.0312	0.0312
Mean	0.85	0.87
CV	3.67	3.59

Notes:

1. Figures in parenthesis are t-values.
2. The star (*) on the regression coefficient refers to the statistical significance while that on the variable indicates the transformed specification.
3. * Significant at 1 per cent level of significance.
4. *CV*: Coefficient of Variation.
5. *** Significant at 10 per cent level of significance.
6. The transformed endogenous and exogenous variables are as defined in Table 2.2.

where all Σ_s are $\sum\limits_{t=2}^{N}$

Now define:

$$p = b - a^2/3$$

$$q = c - ab/3 + 2a^3/27$$

The calculation of ϕ between zero and π radians, yields:

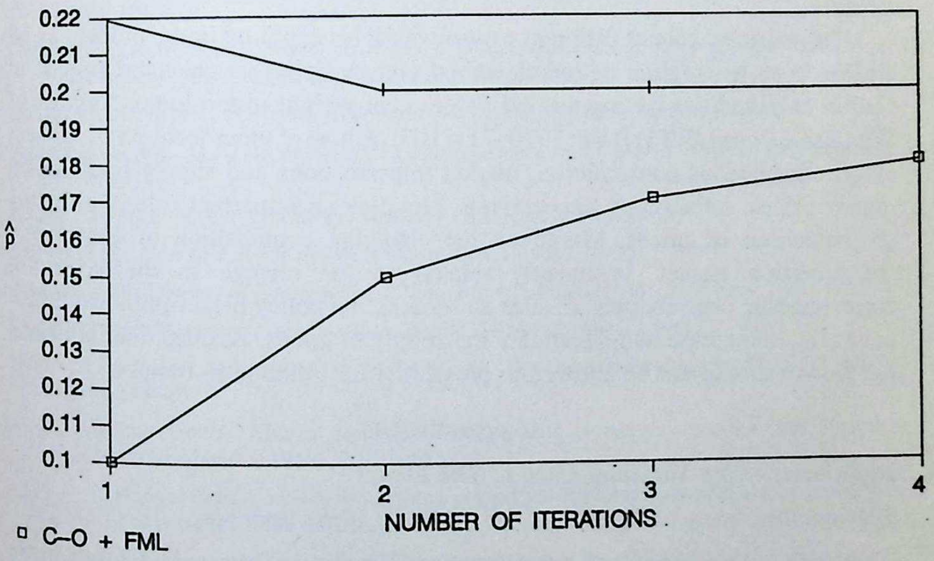
$$\phi = \cos^{-1}[(q\sqrt{27})/(2p\sqrt{-p})]$$

The desired root of quadratic equation (2.10) is:

$$\hat{\rho} = -2\sqrt{-p/3}\,\cos(\phi/3 + \pi/3) - a/3 \qquad (2.15)$$

The value of $\hat{\rho}$, thus, computed at 0.22, was used to transform the specification of equation (4) (Table 2.1) on the aforementioned lines. The OLS estimates obtained for iteration—1 (Table 2.3) were further used in the *original data matrix* of independent variables so as to work out the vector of stochastic disturbance terms. The value of $\hat{\rho}$ was again computed (on the basis of relationships –2.14 and 2.15) and accordingly the specification of basic equation (4) was transformed on the lines discussed earlier, for carrying out the second iteration. The OLS estimates of the model, thus, transformed (Iteration-2, Table 2.3) indicate that

GRAPH 2.1
BEACH-MACKINNON'S FML PROCEDURE
Cochrane-orcutt's (C-O) Procedure



D_t^* is highly significant at 1 percent level of significance. The NM_{t-1}^* and YD_t^* are found to be significant at lower (10 per cent) level of confidence. It may be remarked that the value of $\hat{\rho}$ (0.20) used for the iteration-2 is close to that worked out for iteration-1 (i.e. $\hat{\rho} = 0.22$) and hence we have truncated at iteration-2.

A comparative analysis indicates that the estimates obtained under both these procedures are comparable and consistent as the values of $\hat{\rho}$ obtained from the successive iterations under both the procedures are convergent (Graph-2.1)

However, the Beach-Mackinnon's FML method which differs from the C–O iterative procedure only in respect of the calculation of $\hat{\rho}$ value and transformation of the first observation of the dependent and independent variables, can be preferred as it not only economises the degree of freedom but also yields global maximization of the likelihood function.

Section-III

CONCLUSIONS

A recaptulation of the foregoing analytical discussion, reveals that the personal disposable income (YD_t^*) and the one year lagged narrow ($NM_t^* - 1$) as well as broad ($\dot{B}M_{t-1}$) money supply were significant at only 10 per cent level of significance. However, in some cases, the $\dot{B}M_{t-1}$ was significant at 5 per cent level of significance. The highly significant (at 1 per cent level) dummy variable (D_t^*) signifies the susceptability of inflation to the exogenous shocks of weather abberations and hence the supply side factors. The other explanatory variables included in the model were found to have statistically insignificant influence on inflation.

The restricted role of different control variables captured in the model can be attributed to the regime of 'administered and partially administered prices' of certain commodities having around 31 per cent weight in the Index Number of Wholesale Prices (WPI) Base: 1970–71 = 100). A host of other factors viz. indirect taxes, conspicuous consumption, market imperfections and supply bottlenecks, import prices, inflationary expectations, etc. play an important role in affecting the behaviour of prices. Moreover, the changing composition of consumer's 'consumption basket' is linearly related to the change in the prices of corresponding commodities. In such a scenario, the policy prescription would be, inter alia, to increase and streamline the supply of goods. Besides, the lubricants for growth should not be allowed to prove fuel for inflation in India.

Appendix-2.1

Definitions of the Variables Used in The Model

Abbreviation	*Definitions of the Variables*
$\dot{P}_t$	Price i.e. Index Number of Wholesale Prices; All Commodities (average of months), Base 1970 – 71 = 100.

$\dot{M}_t$	Money Supply which is measured in terms on $\dot{NM}_t$ and $\dot{BM}_t$.
$\dot{NM}_t$	Narrow Money Supply (M_1) which comprises of currency with the public, demand deposits with banks and other deposits with Reserve Bank of India (RBI).
$\dot{BM}_t$	Broad Money Supply (M_3) which consists of $NM(M_1)$ plus time deposits with banks.
$\dot{Y}_t$	Income which is taken in terms of $\dot{YG}_t$ and $\dot{YD}_t$.
$\dot{YG}_t$	Gross Domestic Product (GDP) at factor cost at 1970–71 prices.
$\dot{YD}_t$	Personal Disposable Income at 1970–71 prices.
$\dot{NER}_t$	Nominal rupee-dollar exchange rate.
RTD_t	Weighted average interest rate on time deposits.
$\dot{W}_t$	Wage rate.
D_t	Dummy variable which takes the values as: $D = 1$ for 1966–67, 1967–68, 1973–74, 1974–75, 1979–80, 1980–81, 1986–87 and 1987–88 $= 0$ For the remaining sample period (1961–62 to 1989–90).

The subscript 't' refers to the time period. The dot (.) on the variable refer to the ratio of current year (t) to the previous year ($t - 1$) level of the variable under reference.

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BOOK REVIEWS

NEW WORLD ORDER SERIES—VOL. 9
AID AND EXTERNAL FINANCING IN THE 1990s

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This is yet another very informative volume No. 9 from New World Order Series entitled "Aid and External Financing in the 1990s edited by three learned professors. This is probably a provocative and timely book which explains the events in the field of aid and external financing in 1990s. Of course this volume is a product of contributions made by eminent persons hailing from different countries of the globe. In nutshell this book deals with five broad themes namely (a) the international context in which development aid was given in 1980s; (b) Donors interest in giving aid including food aid; (c) Issues involved in aid; (d) The problem of debt; and (e) World economy forecasts and International agencies.

The introduction points the declining trend of aid to developing countries and emphasised the need of aid to minimise the debt problem to avoid the debt trap. Further it suggests to reduce international rates of interest to have a solution for debt problem.

The volume is divided into 8 parts. Part A entitled "Fungibility and Allocation of Aid" consists 4 chapters, Part B entitled "Food Aid and Disincentive Debate" consists 3 chapters, Part C entitled "Aid, Dutch Disease and Two gap Models" consists 3 chapters, Part D entitled "Sector Lending and other Radical Proposals" consists 3 chapters, Part E entitled "Negative Financing and options for Latin America" consists 4 chapters, Part F entitled "External financing: Some Case Studies" consists 5 chapters, Part G entitled "Global imbalances and Recent Initiatives" consists 3 chapters, and Part H entitled "Emerging issues for Institutional Coordination" comprises 5 chapters.

Chapter I of Part A namely "Aid in the development process by—Anne O. Krueger, U.S.A., explains how Marshall plan transformed the economies though two great intellectuals differed in their approach. The chapter concentrates on the role of aid in development and growth. The author did not fall behind in mentioning the motives behind aid like military, commercial and political. By the end of the 1950s, the recognition of human capital and foreign exchange helped the development economists toward a general equilibrium view of development and away from unicasual theories. In the meanwhile aid has been termed as "Transfer of resources". Though "two gap" model was developed by Bruno and Chenery, it was elaborated by Chenery and Strout, still they had constraints on growth. However, all observers agree that countries with low per capita incomes have little physical and human capital per head, and that increasing capital is essential to growth. Debt crisis in 1980s developed two questions namely whether private flows will remain to develop profitable opportunities in developing countries, and whether developing countries will be in a position to use the private international capital market centres on the 'debt overhang'. Aid should not be based on profit motive because in most of the developing countries projects on which they spent will not yield immediately and needs gestation period. Hence the aid should be based on "need" or humanitarian motives. On criticism of aid the author says that either aid perpetuates dependency or it permits governments to 'escape the burdens of their foolish economic policies. However, as most aid goes to governments, it increases the role of government. The fact that resources are given to governments does not mean that they have command over them. Proper allocation of scarce governmental as well as of private resources is an important condition for satisfactory growth.

Chapter 2 of Part A entitled "The Allocation of Aid among Developing countries: A Multi-Donor analysis using a per capita Aid Index"—by Mark Mc Gillivray of Australia tries to measure recipient distribution of their aid and multilateral agencies. Donor performance is measured by an income weighted per capita index formulated in this paper. The results of the performance of four countries namely Belgium, Finland, Denmark and Norway show they are superior to that of other donors, (Table 2, p. 73) and the United States of America was shown to be the poorest performer. The index was utilised only to show that the country's need for aid is population size. This is simply because a heavily populated developing country requires ceteris paribus, more aid than a less populated one.

Chapter 3 of Part A entitled "Development Assistance: Trade versus Aid and the Relative performance of Industrial countries" by Alexander J. Yeats of World Bank, USA develops a methodology to assess the contribution of aid and trade of industrial countries. The results here show that countries like Sweden, Norway, Denmark which are generally regarded as having liberal aid policies perform below average when combined effects of aid and trade are considered, while the U.K., Netherlands and Belgium emerge as making maximum contribution to development. The United Nations General Assembly adopted a target under which each developed country's aid contribution would be at least seven tenths of 1 percent of the donors gross national product. This goal has been achieved only by Denmark, Netherlands, Norway and Sweden. Mckinon as well as Chinery and Strout formulated growth models which show that an extra dollar of exports has the same effect on development as an extra dollar of foreign aid. The chapter gives the statistical figures in p. 84 and 85 (Chart 1) to show why only four nations achieved the target set by the United Nations. It is clear from the chart the differential trade performance of the top five donor countries generally accounts for 70% of the joint trade and aid contribution. This study suggests that the current practice of establishing aid targets be modified to account for the donor's differential trade performance.

Chapter 4 of Part A entitled "Foreign aid and Domestic Savings in Less Developed Countries: Some tests for casuality" by Paul Bowels of Canada underlines the negative correlation between foreign aid and domestic saving rates in the LDCs is an accepted fact but the direction of casuality remains a subject of dispute. In this study time series data is used to investigate casual relationships and the conclusion follows that casual relationships are not universal. This study is largely concentrated on the studies made by Griffin (1970) and Griffin and Enos (1970) which argue that aid is not distributed on the basis of economic need but on the political expediency. Aid is given based on the benefit it yields in terms of political support. Thus aid is determined by the donor country motives. Griffin's points have been given in page 92–93. The paper concludes by expressing the doubt on the reliability of existing theories which suggest that the macro-economic effects of foreign aid are the same for all countries. The results of this study suggest that there are important links between the motives of foreign aid and the economic effects of aid.

Chapter 5 of Part B entitled "Food Aid: Development tool or Development obstacle?" by H.W. Singer of England says that food aid is only 10 per cent of the total aid by value. Singer suggests that food aid, given as balance of payments support really represents financial aid but food aid helps in local development cost in a way that financial aid does not. For poor countries food aid is essential not only as aid but also as foreign exchange. Though food aid is largely on humanitarian basis, yet there is a conflict between food aid and financial aid. Food aid should be valued at a low shadow price or perhaps even at a negative price since the donor countries save themselves the cost of storage. For purposes of economic analysis food aid is in fact financial aid with the intension of providing balance of payment support. Only reason why big chunk of food aid is really financial aid is because food aid started as 'surplus disposal' and 'trade development' i.e., P.L. 480.

However, the author makes it clear, that there is no such thing as financial aid: all financial aid has to be converted into commodities serving as inputs into the development process—machinery, raw materials, spare parts and also food, except perhaps where the aid serves to build up financial revenues or bank accounts in Switzerland. The author poses a question saying whether food aid is better than financial aid or which is superior and which is inferior? Food aid is certainly a result of common Agricultural policy (CAP) of EEC. Neither economic history nor current cross-country analysis supports the view that food aid reduces the growth of local food production. It was food aid which helped India, Korea, Israel and Greece to finance the Green Revolution. In fact it was the same with Marshall Aid. Few people now remember that 40 per cent of Marshall aid was commodity aid, the bulk of it was food aid. Food is a fact of life, and our task is to make it more useful for development and the reduction of poverty.

Part B Chapter 6 entitled "Food Aid: An Assessment "by Christopher Stevens of England says that food aid also suffers from all problems associated with other forms of aid. In this chapter some questions like, Does food aid do more harm than good? Are we dumping surplus agricultural production and putting farmers in developing country out of business? were asked. The essential point is to ensure food aid fits into a policy framework in the receiving country which will be productive in nature. The author comes to the conclusion by pointing out the need to keep food aid under continuing scrutinity and at the same time putting pressure on national governments to achieve the desirable effects of food aid.

Part B, Chapter 7 entitled "Development Assistance in the 1980s: Some propositions relating to a new aid approach and operational issues by John P. Lewis of USA, wonders whether aid performance has not yet stagnated but a growing squeeze on multilateral prospects. The author draws the following lessons in the chapter: (a) The multilateral development bank business should be active and constructive. (b) They should press effectively for the policy matters to the achievement of the recipients development objectives. (c) Development aid will remain bilateral during the present decade.

During the next several years, more effective coordination among both donors and recipients is necessary. In view of the uncomfortable mismatch between national public sectors and the international public sectors, it is a mistake to view aid programme as an international programme that compete with domestic welfare activities. After all aid is so small in relation to defence budgets of many donors.

Part C, Chapter 8 entitled "International Borrowing in the presence of a Resource Boom: The Dutch Disease and Debt in Four Oil-producing Developing Economies" by James H. Cassing and Jerome C. wells of USA. underline that the economics of resource booms are a part of growth. Now the claims of 'hysteresis' have some empirical validity. Recent contributions to international trade and development have focussed upon the domestic consequences of unanticipated sector specific growth, especially in a natural resource export industry, the so called 'Dutch Disease'. The resource-booming economies of the 1970s, when confronted with the resource bust in the 1980s did not uniformly return to their pre-boom structure. The analysis here focuses on the experience of four oil-producing LDCs—Indonesia, Mexico, Nigeria and Venezuela. Section 2 of the chapter discusses the economic adjustment in developing 'credit constrained countries'. Section 3 presents a means of relating traditional national product measures to the movement of welfare over resource cycles and shows how the acquisition of further resources (and debt) can act to stabilize or destabilize movements in welfare over a cycle. This section besides giving some dimension to economic adjustment occurring through the four channels mentioned in the chapter, present a national accounts based measures of the linkages among production, the terms of trade, foreign net borrowing and standard measure of national welfare—i.e., consumption potentially available. This section uses mathematical formulae to observe the changes. Section 4 examines the joint impacts of debt and the 'Dutch Disease' of Indonesia, Mexico, Nigeria and Venezuela where oil is a significant but not overwhelming component of national product. It examines the basic economic conditions in the four countries before the boom and attempts to determine how each was affected by and reacted to the boom and external opportunities for borrowing that it presented. Two Tables, P. 159 and 161, and three graphs, P. 162, 163 and 164, are self explanatory. Section 5 traces the movement of national product aggregates and their sectoral components over the resource cycle. Section 6 deals with the variations in product use over the petroleum cycle. Table 8, p. 174 and Table 9, p. 175 explains the economic aspects of the oil boom by examining the changes in product use associated with the 1973–81 expansion phase and the 1981–86 contraction. Section 7 describes the interactions between debt and trade balances and draws together results to provide some tentative propositions about the impact of foreign borrowing during resource booms. It also explains the interaction between resource booms and international creditworthiness and the effects of this interaction on the growth paths of output and welfare in four oil producing countries over the 1973–86 petroleum cycle.

Chapter 9 of Part C entitled "Aid the public sector and the Market in Less Developed Countries" by Paul Mosley, John Hudson and Sara Horrell of U.K. starts with a question, Does overseas aid do any good? and answers, that it is not possible to give any trustworthy answer to the question. On the one hand theoretical literature says that aid may 'immiserise' the recipient. On the other, the empirical literature suggests that the theoretical possibility has not yet materialised. However, both the literature do not offer any explanation as to why the 'effectiveness' of aid varies across countries. The chapter utilised equations to test the effecitveness of aid and comes to the conclusion saying empirically it is impossible to establish any statistically significant correlation between aid and the growth rate of GNP in developing countries. Theoretically the model adopted in the chapter assumes utility maximisation in the public sector, but it allows room for an enormous variety of behaviours in the use of aid money according to the preferences which public sector decision makers demonstrate between tax reduction, expansion of 'productive' expenditures, expansion of non-productive expenditures and other objectives of government policy. The donors should concentrate their aid on countries in which the "effectiveness" of aid is high, and that such conditionality to raise aid "effectiveness" should be keyed to policies which will bring about improvements. However, it will be important to examine individual country and find out why the causation runs. Chapter 10 of Part C entitled "Capital, Foreign Exchange and Growth; The Two gap and labour Income Floor Views" by J. Waelbrocek of Belgium compares two theoretical descriptions of the mechanisms through which balance of difficulties affect welfare and growth; the two gap model and the Labour Income Flow (LIF) model which uses fixed—price equilibrium theory. This chapter stems from the author's interest in the global development models built in the World Bank by Hicks and associates (1976), and by Gupta and by his involvement in coordinating the construction of a third world Bank global model. The first two were based on two gap theory, the third on fix price equilibrium theory. This paper reflects the formulations used in these three models. Section 2 presents a simplified LIF model and a two gap model patterned. Section 3 analyses the impact of aid in the two models. The Fourth Section compares the properties of the two systems. The two gap model was developed by Chenery and Bruno. The other is the Labour Income Floor hypothesis hinted by Lewis, which stresses the resistence of powerful groups of the poupulation to cuts in their per capita income. This approach explains the difficulties of developed countries where real income rigidities are strong.

Part D Chapter 11 entitled "The World Bank and the World Poverty" by Kimmo Kiljunen of Finland says that most of the World Bank operations are not directed towards the poor. In recent years, several structural adjustment efforts by the LDCs were made in the context of structural adjustment and sector adjustment lending. Non-project lending is expected to increase sharply over next few years. In the process, the LDCs have been forced to take on a greater burden of global adjustment, since most donor countries have refused to expand financial support for adjustment in the LDCs. World Bank cannot impose a panacea for global poverty problems, nor has it worked to alleviate unnecessary suffering and to limit the extension of poverty. The author suggests that more resources should be chanelled to poor countries and to the poorest people. More research should be made to develop a suitable stabilisation and adjustment programmes.

Chapter 12 Part D, entitled "The Debt Crisis in the context of Adjustment and Development with a Human Face" by S. Griffith Jones of England, wonders whether debt rescheduling and new money packages to Latin American countries made any contribution towards foreign exchange constraint, without changing issue of "Negative" net transfers. After the 1982 debt crisis, within industrial countries the focus was on the negative impact which potential defaults may have on the stability of their private international banks and more broadly on their economies. In Latin America the debt crisis is seen mainly on its impact on a dramatic change in the net transfers of the foreign exchange to the continent and their economic growth. Least attention was given on the human impact and the cost of debt crisis. There is potential scope for cofinancing and guarantees from the World Bank to make a better contribution. Section 2 examines briefly Latin American debts' seriousness and its impact and link with international financial flows. Despite a small recovery in 1984, the region worsened its economic crisis since 1930. The evolution of the industrial economies since 1979 had negative effects on Latin America's growth prospects, which were amplified by the policy mix followed by industrial countries to achieve their objectives and the peculiar characteristics of the system of international financial intermediation. Simultaneously, interest rates were escalated, net inflow of capital declined, and there was a sharp fall in international commodity prices. Further cost of servicing also increased due to previously contracted variable interest debt. Section 3 reviews different proposals made to deal with debt crisis and evaluated them by emphasizing their impact on the largely neglected human dimensions. The author feels that in the present circumstances debtors will have to take the law into their own hands if they want any substantial relief from their present financial constraints. That is, unilateral action from debtor governments may be necessary to achieve the targets of cessation of 'negative' net transfer or a maximum debt servicing. These could be followed by some combination of interest 'capping' or the enlargement of the compensatory financing facility or new issues of SDRs or official guarantees to new loans. Debt forgiveness may be radical, therefore some concessionality is required not to increase the future burden of debt.

Part B of the Chapter discusses the criteria for evaluating debt proposals. Part C explains the types of proposals for Reforms namely broadening of partially implemented adaptation schemes include reduction of spreads, above reference rates, reduction or elimination of additional fees for rescheduling, multi-year rescheduling to consolidate loans maturing within a fairly long period during a single negotiations, larger maturities for debt rescheduled and for new money, increased World Bank confinancing in the context of the 'rescheduling new money', packages and increased official insurance or guarantee provided by national (Exim Bank) or international (World Bank) institutions, again in the context of agreed "package deals". Measures like New SDRs, expansion and adaptation of existing compensatory financing facilities, interest capping of various types, increasing repayment flexibility have the advantage that they could technically be implemented with relative ease and promptness. The main problem is that they either imply a further increase in the debt outstanding or do not reduce its value, as a result, the problem of 'debt overhang' is postponed rather than reduced. Under more fundamental reforms, the radical reforms are (a) encourage new private credit flows; (b) enhance the stability of the international banking system and of flows of private lending to developing countries and (c) reduce the 'debt overhang'. The author concludes the chapter by pointing the proposals that reduce the value of debt service. Measures like guarantees, higher World Bank lending or cofinancing are more equitable internationally and therefore needs more attention.

Chapter 13 Part D entitled "Australia's payments Deficit, Trade Pattern and its Trade and Aid Policy towards Low income Asia and Africa (with special reference to South Asia)" by K.C. Roy of Australia explains that Australia's current economic policy towards poor Asian and African countries is quite inappropriate to its current and long term economic interests. The voluntary aid agencies believe that Australia's current aid programme is being channelled to squeeze the poorest, weakest and most vulnerable groups in the world. Since, East European economies offer a significant scope for the expansion of Australia's merchandise and services trade, a change in Australia's economic policy towards these countries is called for. The author is of the opinion that India should rank higher in Australia's aid programme. The chapter provides 13 tables which are very helpful for future research work.

Chapter 14 Part E entitled "A Lost Generation? Why Latin American Development Depends on Growth, Surmounting the Reverse Transfer Problem of Debt" by Clark W. Reynolds, USA states that Latin America has already lost a decade from its path of Economic development with social and political consequences which not only threaten the stability of the region but also the international system. Long swings were observed in the commodity terms of trade, resource rents, real interest rates and real exchange rates. This swing is largely on raw materials and primary product exports: Table-1 (p. 322) provides export values by country and major commodity export values for selected years to show how the trade pattern has changed between the 1970s and 1980s. The estimates of resource rents in Table-2 (P. 324 and 325) indicate a highly positive trend in the 1970s not only for oil but also for agricultural and other mineral exports. Table-2 also show the windfall the OPEC-led oil price increase of the seventies. Brazil experienced a significant increase in energy costs that would have to be set against their increased rental income from other commodity exports. Though the commercial banks took the advantage of oil shock, and started lending more, yet OPEC gained increased resource rents. Lord Keynes used the term 'transfer problem in 1920s, yet the contemporary 'transfer problem' of the 1970, involves the impact on real resource transfers from a sudden shift in the commodity terms of trade. Needless to stress the growing economic interdependence between Latin America and the international economy in the 1970s. Under the title The Debt crisis: Reverse Transfer problem of the 1980s, it explains the reverse that took place beginning in 1981. The impact of Latin American countries of the simultaneous decline in terms of trade and rise in real interest rates led to a sharp cutback in the regions imports from the OPEC countries and an unprecedented increase in its exports. The reverse transfer problem could also be measured in terms of drastic declines in real wages and living levels for the majority of Latin America's population. The question of this paper is whether another decade will be lost, before development can be restored. This chapter also gives quite a number of tables which provides ample evidence for further research.

Chapter 15 Part E entitled "Negative External Financing: Trends, Consequences and Options for Latin America" by Ricardo F. French-Davis of Chile, observes that net negative transfer amounted to annual average of U.S. $ 28 billion in 1983–86, vis-a-vis declining exports (Table-1 p. 357). The key determinant was huge transfer of financial resources to the creditor banks. This paper explores various tendencies along with consequences observed and the tasks to be taken up for external financing, the negotiation frame work and national development strategy. The management of the debt crisis has proved costly for Latin American countries, with regard to restructuring Debtor-Creditor Relation the crucial problem is the size of the interest payments resulting from a high stock of the debt and the real interest rates. The crucial point for debtors is the eventual loss of trade credit. The stable solution would need an overall change in the framework where specific bilateral negotiations are conducted. The new approach would include extended maturity terms for rescheduling, interest payments below market rates, some write off particularly of private debt contracted originally without public guarantee and contingency clauses. Net lending by multilateral banks should be increased and conditionality revised. Of course this can be done only when LDCs cooperate, but also of less 'unilateralism' on the part of North.

Chapter 16, Part E, entitled "Capital exports and Arrested Development: Notes on the Debt Crisis and the Developing countries"-by Norman P. Girvan of Jamaica tells that the net financial outflow from the debtor countries runs at over $ 24 billion a year representing a net change of about $ 60 billion a year since 1980. Transfers on this scale are only possible with severe cuts in consumption (living standards) and investment (future growth) besides with measures like devaluation. What is needed is that a growing ratio of foreign financed investment to GDP should be accompanied by growing export GDP ratio. Rising foreign lending GDP and Import/GDP ratios should go hand in hand. Moreover, there must be a system of international payments that is adequate to requirements of capital flows, trade and debt servicing. The continued escalation in debt now comes in context of most painful efforts at adjustments by several LDCs.

The case of Sub-Saharan Africa shows the consequences of declining official inflows with continued deterioration of primary commodity markets. Even a modest level of net lending of 5 billion per annum would make a useful contribution to net inflows to debtor countries. The approach to the debt crisis should be made within the perspective of an interdependent development-oriented world Economy. Responsibility, both for its origins and for its solutions is to be shared equitably by all the participants. Debtor country governments need to acknowledge a greater role for their domestic private sector role in solving the crisis, as it involves the private sector use of (past and future) inflows. Besides the need for reversing the net outflow of resources from the developing world, there is a need to absorb the exports of developing countries by the developed world. There is need for effective policies for the identification and development of efficient enterprises, rather than pressure to engage in blanket privatisation and abandonment of protection.

Chapter 17 of Part E entitled "From Adjustment and Restructuring to Development" by Osvaldo Sunkel of Chile emphasise that there was positive development in Latin America during 1950s and 1960s. In 1970s due to neoliberal reaction in economic policy the role of the state was reduced and started relying on the market mechanism. In 1982, debt crisis started transferring 3 or 4 per cent of its GNP. The author concludes by pointing out that Latin America will have to develop a credible negotiation position to threaten important institutions and groups with considerable costs. Without hard pressure and negotiating positions, the author feels that there can be no negotiation. The author further says that Latin America will not be taken seriously or even be considered without such attitude.

Chapter 18 Part E entitled "Some Determinants of Foreign aid to India, 1960–85 "by Ira N. Gang and Haider Ali Khan of USA, analyse the level of aid received and how this level has changed over time. The authors not only identify the sources of aid but also distinguish the types of aid given. This study describes a number of interesting characteristics of the flow of aid to India. The authors pursued a factor analytic model which classified the donors into four groups each with different political and economic motivations for giving aid to India. The donors consider the trade—balance situation more than domestic growth conditions in giving aid to India. The chapter reveals important differences in the determinants of loans and grants given to India by various donors.

Chapter 19 of Part E entitled "External Debt: SSA's Emerging Iceberg" by Reginald Herbold green and Stephany Griffith-Jones of United Kingdom wonder that Sub-Saharan Africa (SSA) does not figure in the world debt crisis negotiations as critical to the global financial system. The SSA debt levels have by no means been within servicing capacity historically. Between 1981 and 1982, total African external public and publicly guaranteed debt outstanding is estimated to have increased seven-fold representing an average annual rate of growth of about 22%. With relatively slow export growth, the ratio of total debt disbursed to annual export of goods and services grew from 71.8% in 1975 to 215.8% in 1984.

The rapid rise in African external debt has not been accompanied by an increase in foreign reserves. A final characteristic of the evolution of the structure of African debt since the mid 1970s is that the traditional creditors of African countries have actually increased their share of African debt rather significantly, while the new creditors have decreased their share. Debt rescheduling is necessary. The authors suggests that for five years substantial relief should be given on (1) principal plus consolidation of arrears of interest. (2) Principal at interest rates at the most not above those currently paid (or unpaid). (3) With 15 years (say 10 to 20 years depending on the country) subsequent repayment; (4) Plus roll-over of IMF drawings effectively to provide interim circulating trade finance until recovery; (5) Plus suspicion back to sleep and normal short term trade and bank credit. The authors have given fine tables which are very useful for future research on the subject.

Chapter 20 Part F entitled "Government Regulations, External Financing and Economic Performance: The case of Korea" by Rainer Schwehiekert of Germany identifies empirically the effects of FDI and aid flows on investment, domestic savings and economic growth. The investment and growth responses of both FDI and debt inflows were supposed to be stronger than in the case of aid. In the case of Korea FDI and aid played only a marginal role in the external financing of Korea. Two major effects are expected from the policies pursued by Korea. First, the external financing structure of Korea will shift towards the pattern considered as optimal by the agent-principal model under cooperative transfer conditions. Secondly, the policy re-orientation is well suited to improve the efficiency of foreign capital inflows. Financial markets in Korea remained segmented although interest rate differential among industrial sectors were substantially reduced since 1982. The liberalisation programme should be extended to capital markets in Korea to accelerate and facilitate the desirable shift towards more equity participation and to further improve the efficiency of capital inflows. Restrictions concerning to equity participation of foreign investors should be abolished to widen the potential of risk sharing, to attune the servicing of foreign obligations to the ability to pay, and to diversify the sources of external funding. Foreign investors should be allowed to participate in Korean listed shares and at the same time Korean enterprises should be allowed to list their share in international Stock Exchanges. At present the engagement of foreigners in Korean capital markets is largely restricted to indirect forms especially through the Korea fund, i.e., a closed-end investment fund offered during mid 1984. The chapter offers very useful data through tables.

Chapter 21 Part F entitled "Oil Prices and Third World Indebtedness—Is there a Linkage?" by Ibrahim F.I. Shihota of World Bank, USA, starts the chapter by saying "casual linkage" between the oil price rise of 1973–74 and 1979–80 and the inability of developing countries to service their debt. The oil exporting countries deposited their money in industrialised countries. However, it should be observed that the LDCs which enjoy large suplus are primarily oil importers not exporters. In fact, some of the countries with the highest ratio of medium and long term debt to GNP among the 'heavily indebted countries' are oil importers. (Table 2, p. 486). Commodity prices declined sharply. (Table 3, p. 487). Since 1982, no country with debt problems reduced their debt ratios. According to the forecasts made by World Bank Staff (Table 9 and Chart 6, p. 513 and 514) by the end of the century, oil prices in real terms will have recovered to about the level they had in 1974. This level should provide adequate incentives to develop new oil fields and promote energy conservation.

Chapter 22 of Part F entitled "Stabex and Commodity Export Compensation Schemes: Prospects for Globalization" by Adrian P. Hewitt of England says that stabex supplies a measure of export earnings stabilisation support provided by the EEC from an aid fund, for a number of African, Caribean and Pacific countries under the terms of the Lome conventions. The system of stabex is designed to mitigate the ill effects of earnings, short falls on agricultural commodity trade with the EEC without intervening directly in the market. The ACP position is to support stabex since it provides them with soft aid inflows in the foreign exchange of their choice which appear to them to be additional to the more slowly disbursing project aid from the EEC which is agreed in each five year indicative programme. Many of its shortcomings arise because it is a scheme giving partial coverage. Section 4 (a) analyses the proposals made by Germany for a complimentary earnings. Germany focusses firmly on international commodity policy. Section 4 (b) reviews the IMF compensatory financing facility which is not restricted to commodity earnings or regulated on an individual commodity basis. Section 4 (c) considers the findings of the UNCTAD Expert Group on compensatory financing of 1984 which made proposals towards a complimentary global scheme, and section 4 (d) with an examination of the EEC's proposed extension of Stabex to the non-ACP least developed countries. The chapter concludes whatever the EEC's intensions in extending the scope of the stabex scheme to a handful of non-ACP developing countries, in this international climate it is unlikely that a fully globalized export earnings stabilisation scheme will emerge with full western support for some time to come.

Chapter 23 of Part G entitled, "Debt Problem: What next? by Dragoslav Avramovic of USA says that the present debt situation is unfavourable. The author suggests a six year arrangement for the LDCs including: postponement of amortization; part payment of interest in foreign exchange; part payment of interest in local currency, deferal of part of interest and its conversion into a new loan due in foreign exchange. It is also suggested that countries benefitting from interim arrangements establish a collective insurance fund to guarantee future interest payments fully payable in foreign exchange. Existence of such fund would upgrade the value of debts due to greater security, and it should be possible to negotiate an improvement in the loan terms including a reduction in the rate of interest once the fund has been built up to the required size: The authors suggests for further modalities of insurance.

Chapter 24, Part G entitled "The International Monetary System: Present and Future" by Dominick Salvatore of USA review the working of the present international monetary system and the reasons for its inability to solve the major international economic problems and also the likely future monetary system. The system was jolted by two rounds of large oil price increase (1973–74 and 1979–80) which resulted in double digit inflation and two recessions. The shortcomings of the system are the large volatality of exchange rates, the gross and persistent misalignments of exchange rates, and the failure to promote greater coordination of economic policies among the leading industrial nations. Leading industrialised countries are not willing to give up control over their money supply. Section IV and V of the chapter discusses alternative monetary systems and the formation of three new currency blocs with more flexible rates among them within each bloc.

Chapter 25 of Part G entitled "Siphoning off Resources from the periphery: The Relevance of Raul Prebisch's Thinking for the Eighties "by Kunibert Raffer of Austria explores various elements of Raul Prebisch's work relating to the Siphoning off of productivity gains of value added from the periphery, since Raul Prebisch's thinking and the latter unequal exchange theories are interrelated. This paper is illustrating the relevance of his thinking in the light of the recent evolution of commodity prices. Raul Prebisch centred his attention on the mechanisms of foreign trade and technical progress since export earnings played a major role in Latin America's progress. Kindleberger (1956, p. 246) concludes that "the terms of trade favour developed and ran counter under-developed countries." Though it is not identical to Prebisch/Singer, yet it means practically that net barter terms of trade moved against peripheral countries—raw material exporters. Kindleberger (1956, p. 272) did not relish to call it as "exploitation" but writes:

"In our terms this means merely a higher degree of interference in the price making process. The greater interference has two aspects: First, greater capacity to affect the price-making process, because of less elastic demand and more control over supply; Second, a more frequent use of such advantage."

The author says if this is not exploitation by trade, however, it might be difficult to find an acceptable definition of exploitation at all. Unequal exchange means increasing exploitation. Prebisch's argument of Siphoning off a development stimuli is reinforced by unequal exchange theory. All unequal exchange approaches study 'real' income drain from the LDCs to centre; the revenue per unit actually received by exporting LDC is often lower than F.O.B. prices and to study 'net' barter tems of trade. The author concludes that Prebisch's findings are highly relevant for development research in the 1980s.

Chapter 26, Part H entitled "Multilateral Aid to Developing countries by H.W. Singer of England says that much bilateral action is a co-ordinated action by giving an example of ODA which has been linked with aid—consortia or consultation groups. The learned professor points out that better coordination of bilateral aid can go a long way towards achieving the advantages of multilateralism by giving an example of a drawback of bilateral assistance compared with MODA is the tying of aid to the products of the donor country. To use the author's words, multilateral aid is a fraction of a fraction of a fraction of a fraction and the total MODA is only a fraction of ODA. The Brandt Report suggested a number of changes in MODA (P. 652 to 656). The existing facilities (compensatory and EFF) need to be expanded and made more functional to overcome the problems posed by the current conditions in the world economy.

Chapter 27 of Part H, entitled "Europe 1992 and the Developing Countries" by Louis Emmerij of France says by the end of 1992, the EEC is supposed to be truly, "common" that is the 1992, Europe will not be a "Fortress Europe" but a "partnership Europe" and it will be in "locomotive action" and will thus be a benefit to community and non-community countries alike. The 1992 Europe will not mean protectionism because the community has a fundamental stake in the existence of free trade, and open international trade but also the Urugway Round, the MFA, the GSP and Lome Four. The chapter discussion is based on probabilities rather than certainties. The author says though 1992 Europe provide a biggest market, the developing countries must constitute into regional economic blocs. The author recommends the creation of a fund for coordinated research.

Chapter 28 of Part H entitled "Measuring capital flight from the Indian Economy" by Benu Verman—Schneider estimates the magnitude of capital flight from the Indian Economy based on the balance of payments data. Capital flight was probably not induced by macro-economic events, but rather by political threats to rent-seeking activities. The case of India underlines the need for country—specific models to measure capital flight. While Latin American experience with capital flight is largely explained in terms of over-valued exchange rates, budget deficits, inflation and built up of external debt. The experience of Philippines shows the role of political instability in builing,up of external debt. The combination of corruption, political changes and policy decisions contributed to the flight of capital from the Indian Economy. This chapter is very useful to the students who may do research on this topic.

Chapter 29, Part H entitled "Growth-oriented Adjustment Lending". A Critical Assessment of IMF/World Bank Approaches by G.K. Helleiner of Canada, suggests that the 1980s show a new approach to policy leverage on the part of external sources of finance for developing countries. The 'new conditionality' is intended to move beyond the traditional IMF type by addressing the need for "growth-oriented adjustment". Just as the IMF has been criticised for the oversimplicity and inflexibility of its short-term models and approaches, the bank now attracts criticism for the generalised character of its recommended development policies.

Chapter 30 of Part H entitled "World Economy Forecasts and the International Agencies" by Sam Cole of University of Buffalo, USA, observes how efforts have been made to forecast world economy from the last decade by different agencies. These forecasts appear to show a systematic and unwanted optimistic bias. World Bank prepares forecasts for the annual world development Reports. Taken together, the constraints of conditionality and the growth of planning in developing countries mean that the impact of the forecasts reviewed in this paper is increasing.

The editors have done an excellent job compiling various papers on the subject from eminent experts through out the world. The editors took due precaution to publish all the details in the chapters. Each chapter has been well documented. The research students on the subject and on inter-related topics will get maximum benefit to prepare their thesis by giving a reading to the book. The subscribers had the guts to present the facts. The suggestions in the book are well supported by consistent data base. They have certainly advanced the knowledge on the topic. The book is a must for social scientists and for policy makers. In total it is an excellent volume which deals with Aid and External Financing in 1990s.

NEW DIMENSIONS IN ADVERTISING MANAGEMENT

Edited by: SHIVA RAMU, Humalaya Publishing House, Bombay, 1991, pp. 142, Price Rs. 150.00.

Reviewed by: PROF. S.M. WASEEM, Professor of Commerce and Coordinator, MTA Programme Aligarh Muslim University, Aligarh-202 002.

The book running into 133 pages excluding the numberings on blank pages and those merely giving titles of the Chapters, purports to render to its readers, as per the author's statement, "the genesis of the dimensions and the attempts of marketing teachers to provide the framework", which to this reviewer has been provided though briefly and in nutshell. Thus, a book "intended to students of advertising management" serves its purpose scantily.

The author enlists eight major issues viz., service marketing, social advertising, advertising and children, ethnicity and advertising factual claims in advertisments, animals and birds in advertisement, and globalisation of marketing and standardisation of advertising for discussion. The book enlists around 100 sub-titles in its Four Parts: Part I which is devoted to Marketing of services and ideas, has Two Chapters—Chapter I deals with Service Marketing, and Chapter II deals with Social Advertising. Part II is devoted to Market Segmentation, and has Two Chapters—Chapters III and IV—dealing with Advertising and Children, and Ethnicity and Advertising respectively. Part III enlists matter on Copy Decisions described in its Chapters 5 and 6: Chapter 5 discusses Factual Claims in Ads, and Chapter 6 discusses Animals and Birds in Ads. The last Part i.e., Part IV which is devoted to International Marketing, and has only one Chapter captioned Globalisation of Marketing and Standardisation of Advertising. The book does not have Index.

What is described above itself speaks of the space devoted for the exposition of issues and their place in the book. These, if described in detail, would have added further to the value of this otherwise well prepared book. One would be right in expecting from an author of Shiva Ramu's eminence that instead of dwelling upon other authors' works and ideas in a small book like this, he would present his own thought in reasonable detail. This in his lucid style and technique of writing, would have provided material of immense utility to his readers. Nevertheless, the Author's requisite style of writing, his dextrous approach and skill in dealing the subject, and the thoughtful enlisting of the titles and sub-titles for discussion; though starved of their due details, deserve appreciation, also for their description in a coherent form. The utility of the book to the informed teachers and researchers on the subject in arranging their own ideas on the basis of the road map provided by Shiva Ramu cannot be denied.

The author's claim (that) "This book is intended to identify a few new/dimensions of marketing which will have a major effect on practitioners in the last decade of this century", when read with what has been said in the last two lines of the Introduction (This book is intended to the students of advertising management, Besides, it will be useful to users in ad agencies), seems to be digging in its futuristic promise particularly for the readers/ users in less-developed economies. But, after going through the pages, one finds that the discussion is conspicuously centred around the review and analysis of what is being done in the West particularly the United States of America, and by the big concerns including the multinational corporations, and for that matter what has been written by the Western marketing authors, researchers and advertising agencies. For instance, the discussion on the role and information supplied by the advertisements, though useful, is mostly based on the information generating in the United States particularly in New York. However, the solace offered to inquisitive Indian readers, students and researchers comes in the form of a brief discussion on Ads in India which runs into four and a half pages (pp. 113–118). Likewise, the attributes and benefit classification enlists target and objectives of advertisements in India.

Shiva Ramu's brief description of international advertising and the role of multinational corporations in international advertising makes an interesting reading. Discussing foreign brands introduced in India (pp. 138–139) he opines: "In 1980s, many MNCs tried to globalise marketing. There were several attempts by multinational advertising agencies to build up linkage with Indian ad agencies. This was the intention of integrating advertisments in their marketing efforts." (p. 138) And (that) "During 1980s, there were several foreign brands which were introduced in the Indian market with a high budget for advertising. Most of the Indian partners thought that the foreign brand name was good enough to market in India. However, foreign brands failed in the Indian market due to various reasons." (pp. 138–139) Further; "In all these, the brands which were globally known were not able to succeed in the Indian market mostly for their marketing mismatch and not just because of its advertising. The product pricing and positioning play a major role in the failure or success of foreign brands in India." (p. 139) This itself speaks of the strength of a maturing Indian economy and the maturing Indian consumers alike, for the common belief that anything foreign follows Say's law in India, is disproved. This comes as a fine piece of advice to the Indian merchants, joint venturers and importers alike, who, in a number of cases, have been found negotiating for something foreign in disregard to price and market orientation imperatives.

INDIA'S TRADE RELATIONS WITH JAPAN: AN ECONOMIC ANALYSIS

Edited by: A.G. LEONARD, S.J. Indus Publishing Company, New Delhi, 1993, pp. 240, Price Rs. 280.00.

Reviewed by: PROF. S.M. WASEEM*

The book running into 240 pages, has been divided into Five chapters. It contains Foreward, Preface, Appendices consisting of 23 Tables, its Bibliography and an Index. Most of the matter in the book does not have direct bearing on the subject, as also with the title of the book. Excepting one and a half pages (pp. 26–27) devoted to Indo-Japan (ese) Trade Relations, and pages 66–67 devoted to India's trade with Japan, one does not come across the matter directly related to the title of the book till one reaches page 94 wherefrom A.G. Leonard S.J. takes to coherent disussion on Indo-Japan Trade Relations till 1966; though, contrary to the period stated in the caption (. . . Trade Relations till 1966) there appears discussion on the Issue from 1966 to 1986.

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A.G. Leonard S.J. discusses concepts and theories of trade numbering 22 in all in his own way, and, all these running into 16 pages only; thus, each getting less than one page on an average. The exposition to the expert and the informed is not satisfying; while for the inquisitive students of international trade it will make no impact. Almost the same applies to his review of literature given in less than three pages (pp. 59–62). Chapters Four and Five captioned 'Results and Discussions' and 'Conclusions: Summary and Policy Implications running into 82 pages and 13 pages respectively, are indicative of the author's hard work and intelligence. The data and information on Indo-Japan Trade harnessed and presented by the author; though providing him ample opportunity to discuss, analyse and interpret them for arriving at conclusions relating to the overall gamut of India's trade with Japan, its commodity structure and value base, have not been maximally utilised. The author for reasons best known to him, apparently seems satisfied just by writing one sentence on the data presented by him. For instance, referring to Table Nos. 4, 5, 6 and 7, one finds a simple explanatory sentence, thus: "Annual exports of principal commodities are given in Table 4 below", and "the status of India's imports during the period 1966–85 is presented in Table 5", and that "the percentage shares of India's major trade partners in its exports during the period 1966–85 are presented in Table 6 below . . . " (p. 83) Further: "The percentage shares of these five same countries which served as India's major trade partners in imports too are presented in Table 7 . . . " (p. 83) The aforementioned remark holds good for Table Nos. 15,16, 20 and some other Tables also; otherwise painstakingly compiled by the author.

It is remarkably satisfying indeed that unlike other cursory studies on trade, A.G. Leonard S.J. has skilfully drawn instability indices of india's exports to and imports from Japan as well as rest of the world, and the whole world. His analysis of the ranking of major commodity groups of India's exports to Japan, and imports from Japan is interesting: Likewise, the statistical analysis of India's terms of trade with Japan, with the rest of the world, and with the whole world, gives a crystal clear though synoptic view of the competitiveness of India's exports and imports as a whole. The statistically treated data hold promise of benefit for the inquisitive and the informed ones.

The author's suggestions including quality control for the agricultural commodity group of exports, export promotion efforts, training programme for artisans engaged in cut diamond, musical instruments and garments manufacturing, deserve consideration. His advice regarding the stabilisation of import prices, deserving a sympathetic understanding by the Japanese counterparts rather than Indian exporters, surely speaks of his concern for achieving a higher level of Indo-Japan trade, and mounting import bill. "India may initiate and intensify proper negotiations for a reduction in unit value of machineries, iron and steel, organic compounds and synthetic rubber. Stability achieved in value imported from Japan must be maintained progressively adopting measures to seek gains to India in its trade with Japan." (p. 196) "Rosewood exported to Japan", according to the author, "presented a fluctuating trend both value-wise and volume-wise with reference to India's total exports in the eight-year period considered as could be observed from" the data given in Table 28. "Out of the eight years considered, only in two years, viz., 1978–79 and 1979–80, rose wood occupied a percentage share greater than one in India's exports to Japan, value-wise. The years recording unit value from Japan larger than that from the rest of the world were only three, viz., 1978–79, 1979–80 and 1981–82. The unit value paid by Japan for rose wood exported was as much as Rs. 6,000 per cubic metre lower than that paid by the rest of the world in the year 1983–84. But quantity-wise, the loss was not very large." (pp. 146–147) While discussing unit value of India's exports to Japan, A.G. Leonard S.J. is found lamenting: "But the international trade policy of the developed countries including Japan was one of protectionism for primary products. Since practically all exports to Japan belonged to this category, there was not much scope for India's export expansion to Japan. There were two areas in which India should" suggests the author, "concentrate in order to expand its exports: One should be the area of quality improvement in practically all export products, and the other area should be to get Japan to trade with India more in manufactured commodities." (p. 156) At this place conspicuous in their absence are the provisions under the Generalised System of Preferences, and a critical analysis of tariff and nontariff barriers.

Discussing imports' unit values, the author states that due to tied foreign assistance India continued to import from Japan certain commodity groups "in spite of price advantage in other parts of the world". "Another case where prices were beyond the control of importers was when imports were agreed upon for the raw materials to be used in an industrial unit set up with the collaboration of a foreign country." (p. 165) On page 169 A.G. Leonard S.J. offers another explanation, thus: "But then trade persisted because the imports from Japan were qualitatively superior to those from the rest of the world and India was committed to import certain commodity groups falling under collaboration and foreign assistance agreements."

Nevertheless, the book is a welcome addition to the existing literature on international trade and more particularly to the literature on Indo-Japan trade relations.

EDUCATION FOR EXCEPTIONAL CHILDREN

Edited by: S.S. Chauhan, Professor of Education, H.P. Univeristy, Shimla.

Published by: Indus Publishing Company, New Delhi-110 027 (India), pp. 275, Rs. 250.00, 1989.

Reviewed by: Dr. Nandita, Lecturer in Economics, Allahabad Degree College, Allahabad.

This book gives information about various types of exceptional children like the gifted, creative, delinquent, mentally retarded, learning disabled, visually impaired, hearing impaired, speech handicapped, crippling and special health problem children and methods of educating them. This book is very useful to students, teachers, parents and institutions dealing with exceptional children.

Exceptional children are generally neglected and did not get the benefits of education and opportunities to develop their personalities in India as well as in other developing countries. There is great need to give special education and training to such children so that their inherent potentialities may be developed for the benefits of the individual child and the society.

In the introduction, definitions of exceptional child and types of exceptional children are given. It also states the aims and importance of special education and qualities of special education which should be given to exceptional children. The book has 10 chapters. Chapter 1 states the introduction and other remaining chapter deal with different types of exceptional children seperately.

Chapter 2, is related with the gifted child. It defines the gifted child and illustrates the characteristics of gifted children and the problems faced by these children in home and school. It describes the major strategies for teaching of gifted children and the characteristics of the teachers of the gifted children.

Chapter 3 is devoted to the creative child. In this chapter, the term creativity is defined and characteristics of creative child are described. It gives methods for stimulating creativity and suggestions for parents.

Chapter 4 deals with the problems of delinquent child. It gives the meaning of deliquency and characteristics of deliquent child. Besides mentioning the causes of deliquency, it also describes the measures to prevent deliquency and the procedure of treatment.

Chapter 5 describes about mentally retarded child. The chapter defines mental retardation and classifies mental retardation on the basis of I.Q. and other factors. It also explains the causes of mental retardation and specific education for different types of mentally retarded children.

Chapter 6 is concerned with children with learning disabilities. It gives meaning of learning disability, process of indentifying learning disabled children and characteristics of these children. Then it says about the methods of educating learning disabled children.

In chapter 7, focus is laid on the visually impaired child. The chapter defines the term visual impairment. It describes about the types of visual impairment, causes of visual impairment, precautions for it and modes of educating the visually impaired.

Chapter 8 deals with problems and education of the hearing impaired child. Meaning and classification of hearing impaired children, causes of hearing impaired and preventive measures and the methods of educating hearing impaired children are discussed in this chpater.

Chapter 9 discusses the problems and methods of education of the speech handicapped child. It calssifies speech handicaps and gives causes of speech handicaps. The chapter provides preventive measures and ways to educate speech handicapped children.

A description of crippled children and children with special chronic health problems is given in chapter 10. It describes neurological impairments, orthopedic conditions, developmental abnormalities and different types of congenital heart defects, respiratory ailments, specific organ malfunction under chronic health problems and their possible causes. Children suffering from these health problems, have to remain absent from school for long period due to treatment. The chapter suggests special educational provisions for such children.

In Appendix, a government sponsored scheme of intergrated education for disabled is described. It reveals aim and objectives of the scheme, its implementation, scope, type, selection of schools and training of teachers for introducing the scheme of integrated education.

The author has described very well the problems of exceptional children and methods of educating them in this book. But there is need to do more research work on the problems of exceptional children and their socio-economic conditions. The author has suggested priority areas of research on exception children in each chapter. The research students on the subject and on interrelated topics will get maximum benefit from this book and it is also useful for teachers and parents dealing with exceptional children.

WORLD SOCIETY STUDIES VOLUME 1

Edited by: VOLKER BORNSCHIER, PETER LENGYEL, Campus Verlag, Frankfurt/ New York, 1990.

Reviewed by: S. SHIVA RAMU, Professor, Indian Institute of Management, Bangalore-76.

The World Society Foundation, Jurich supports several social scientific research on world society. This foundation was established in 1982 by Peter Heintz. The Foundation "respects values of scientific nature, of comprehensibility and of pluralism". Out of these sponsored researches, they have designed a series of publications to communicate the research findings. This volume is the first of the series, which concentrates on Latin American region in the global society perspective.

The notions of World Society have three meta-concepts and approaches such as biosphere, technosphere and sociosphere. Out of these three concepts, the sociosphere is the most immaterial, the most elusive and the most ill-defined concept. The present volume focusses "almost entirely on the sociosphere". There are three ideal typical processes in the social systems such as cultural dimension, political dimension and economic dimension. All these dimensions have historical roots. Many scholarly contributions have tried to pursue the evolutionary lines of classification depending on the emphasis given: social history approaches, world economy approaches, world political approaches and cultural and awareness approaches.

The present volume is divided into three sections. The first section deals with different approaches. Nollert gives the summary of various empirical results of the meaning of inequality in social theory. Most of the studies have dealt with income inequality, occupational mobility at the level of nation-states, interstates and international inequality and mobility in the interstate systems. However, most of the studies have not been able to find conclusive solutions of income inequalities at the country level due to methodological deficiencies. There are contrary hypothesis on inverted "U shaped development inequality linkages during the process of industrialisation everywhere". Though the western societies have created a social security system where the redistribution of goods in favour of disadvantaged citizens are taken care of, developing countries persist in the inequality. Some of the characteristics of theoretical work on inequality in the world system are political perspective, modernisation theory, the structural political perspective and one system approaches. The author suggests that there are grounds to associate ethical perspective besides antiegalitarian conservatism, radical egalitarianism and meritocratic liberalism for reduction of poverty and narrowing social inequalities.

On the other hand, Munoz takes the inequalities existing in the world system through economic and political approaches. He briefly gives the transition of transformation in the world order due to changes in technology and the tendency towards 'uncoupling' of industrial economy from primary producing economy and employment from production. With the changing situation, there are three major international themes in respect to Latin American perspective viz., relations of the United States and Central American crisis, debt burden on the world economy and the process of redemocratization.

Similarly, Sanchez describes the scenario of north-south conflicts. He develops three scenarios, first keeping the northeren interest as the major one, second trying to harmonise the interest of both north and south and finally of a scenario of keeping southern interest. With these scenarios, different approaches are depicted while northern are trying to approach the global economic management through sectoral negotiations under the control of experts and in specialised forms. While there is limited scope for north-south joint management system. In the southern perspective, there has been a growth of combining their interest since 1955 Bandung Conference. To avoid the global political anarchy, the author views that the transition from East–West conflict towards the main value of North–South agreement may be the best alternative for the future global economic management.

The second part has five essays dealing with Latin American perspective. Anderson deals with the nature and meaning of the phase of Hispanic American Liberation, the struggle and transformation of Spanish Empire in the Americas. He describes the continental conflicts in Latin America with its wars of national liberation may be the first creation of third world concept. The scenario of American Independence developed three strands of relationship; firstly Latin America was the "immediate heir of the global impact of North-American and French Revolutions". Secondly, the capitalist economy was more advanced than Spanish social formation. These resulted in overt conflicts between creoles and peninsulars in the colony. Thirdly, there was an immediate impact of French Revolution which triggered Spanish colonial emancipation.

Sanchez described the socio political realities of Latin America in the global context. One of the basis of geospatial classification: he classifies Latin America into five sub-regions viz., Mexico and the Caribbean, Central America, Andean Sub-Region, The Atlantic and the New Caribbean. Internally the regions are separated and within countries there exist privileged centers and isolated zones which in turn created internal colonialism. There was less social integration due to ethnic and racial diversity which almost created a social stratification called "pigmentocracy". Besides, the political literature has identified three types of states in the region: oligarchical, populist and bureaucratic-authoritarian.

Vayrynen describes the geopolitics and the world economy: a case history of Brazil. This was taken to illustrate the "cyclical expansion of world capitalism into peripheral areas". There are two aspects of this expansion, one is commodity cycle and long and short term fluctuations of economic growth. In Brazil, the commodity cycle and the emphasis of economic activity has shifted from one export commodity to another, depending on the changing demands of the colonial core. In 17th century Brazil had a coastal monoculture (sugar production, slave labour) and the pastoral society. In the north-east, it was built on cattle and leather. Then it was followed by the gold cycle with its boom and later cotton emerged temporarily as an export commodity. Subsequently, both sugar and cotton declined in the 19th century. Then there was a development of export of coffee and in between there was a brief rubber boom in 1880s and 1910s. This was followed by industrialisation. Geopolitical doctrines have dual characteristics. Nationalism and geopolitical thinking are responses to uneven development. The author feels that there is a chance for Brazil to continue to develop from semipheriphery to the core of the international economic system.

Lengyel gives the comparative pattern of Australia and South America, the pattern of semi-pripherality. Latin America was based on 'pigmentocracy' while Australia was based on 'squattocracy'. This was dominated by the settlers who were more egalitarian in concept and based on export of wool.

South America is caught with the turmoils of modernisation with growth poles and backward sectors, while Australia has a uniform modern society without a traditional sector.

Oliva deals with the deteriorating nutritional situation in Latin America and Africa. The capitalistic logic gives three dimensions of vertical differentiation. The first is national differences in societal accumulation. The second difference is in social productivity and labour. The third difference is in the efficiency of converting the labour productivity into accumulation. All these can be described as a societal accumulation crisis. He finds that Africa is in the phase of structural heterogeneity via urban growth, similar to the development pattern of Latin America.

Section Three has got two essays on special subjects. One is on peace and another is on public debt. Russett takes partial stock of peace research and he tries to compare solving war with cancer problem. There is difficulty in solving either problem and he dismisses a 'single cause theory' in analysing causes of war. He feels there is a combination of several factors like democratic government, economic decline or vice versa will produce greater dispute involvement. He also differentiates between positive peace and 'non-war' concepts. In the positive peace, there is an element of reciprocity, equality and joint problem-solving capabilities, while non-wars is negative peace depending on different conditions such as one-sided dominance or mutual irrelevance or mutual deterrence.

The final essay (Suter et al.) deals with external public debt of the periphery. This is a good historical analysis of the sequence of booms and crisis which are recurrent. He compares it to Kondratieff growth cycles of 60 years. He suggests there are distinct features of peripheral indebtedness. First, there is a pattern of 50–60 years of major debt crisis occurring. Secondly, this can be explained with reference to specific economic and political structure within the indebted countries. Recently, there is a development of multilateral rescheduling within Creditors' Club. The article specifically takes the perspective of three countries Peru, Argentina and Turkey from 1820 to 1985. It gives external debt and the various political regimes in these countries. Mostly a "state class-based and populist regimes rely heavily on foreign debts, which are largely used unproductively for redistributive or consumptive purposes". The authors hope in the "long run increasing cooperation and enhanced institutionalization may modify the mechanisms of Kondratieff cycles".

These essays provide enough material for those interested in analyses and historical background to the dynamics of current events and transnational processes. This book is highly recommended both to academic researchers dealing in global society aspects and policy makers who are involved in international negotiations. If one reads this volume, one gets an impulsive urge to search for further volumes in this series.

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INTER-COUNTRY QUALITY OF LIFE COMPARISON: DOES MEASUREMENT ERROR REALLY MATTER?

पुस्तकालय
दि०..........
गुरुकुल कांगड़ी विश्वविद्यालय

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There will inevitably be errors in the compilation of aggregate data on economic and social variables. This contributes to doubt over the usefulness of quality of life indicators based on these variables. This paper considers the implications of measurement error for one such indicator, the "Human Development Index" (HDI). Would HDI rankings, observed across a comprehensive sample of countries, substantially alter if measurement errors were corrected? In other words, does measurement error *really* matter? This question is examined by adjusting the HDI on the basis of hypothetical errors, within reasonably wide margins, in its component variables. After comparing rankings based on adjusted HDI values to observed actual rankings, it is argued that the answer to this question, generally speaking, is no. It is, however, emphasised that this is not an argument to avoid improving the reliability of economic and social data.

I. Introduction

Despite the plethora of economic and social welfare indicators, there is often scepticism over their reliability due to perceived measurement errors. The well known catchcry is that insights into welfare can only be as incisive as the data on which they are based. With this there can be little disagreement. Nor is there disagreement that there will inevitably be errors in the compilation of aggregate data on economic and social variables. A question, however, remains. A principal use of these variables is to rank countries in terms of welfare or quality of life levels. To what extent does measurement error impact on country rankings? It is this question to which this paper's attention turns by focusing on a recent yet well

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[1] The HDI and quality of life variables have been the subject of extensive scrutiny by various recent studies (see, for example, Hopkins (1991), Kelley (1991), McGillivray (1991), Ram (1991), Rao (1991), Slottje (1991), Dasgupta and Weale (1992) and McGillivray and White (1993)). A number of conclusions drawn by these analyses will, of course, be contingent of the accuracy of the HDI and related variables.

known composite indicator, the Human Development Index (HDI).[1] Proposed by the United Nations Development Program (UNDP), this index ranks countries, both developed and developing, on the basis of income per capita, educational attainment and life expectancy. This paper decomposes the HDI, adjusts each component by assumed random errors, recalculates and then compares the adjusted index to the observed actual index. The result of this exercise indicate that country rankings according to the index are reasonably robust with respect to measurement error within quite wide ranges.

II. The Human Development Index

Prior to pursuing the main purpose of this paper, it is instructive to first briefly examine the definition of the HDI. The index is currently defined as follows:

$$HDI_j = 1 - \left(\frac{1}{3} \sum_{i=1}^{3} I_{ij} \right) \tag{1}$$

where I_{ij} is the ith indicator of human deprivation in country j, $i = 1, ..., 3$ and $j = 1, ..., l$. Country j's deprivation is assessed on the basis of the following variables: life expectancy (X_{1j}), educational attainment (X_{2j}) and purchasing power adjusted (PPP) GDP per capita (X_{3j}). The latter serves as a proxy for 'income for a decent standard of living' (UNDP, 1990, p.13). We consider the construction of these variables below. Deprivation is treated as a relative concept by scaling these variables within the range of zero to one using the equation:

$$I_{ij} = \left(\frac{(X_i^* - X_{ij})}{(X_i^* - X_i^m)} \right) \tag{2}$$

where I_{ij} is country j's indicated deprivation with respect to X_i, X_i^* is the maximum observed value of the ith variable, X_{ij} is the observed value of the ith variable for j and X_i^m is the observed minimum value among l countries. If some country attains the maximum of the ith variable, an absence of relative deprivation is said to exit and, in turn, a maximum observed level of human development with respect to that variable is achieved. If this is the case, then it follows that X_i^* equals X_{ij} and I_{ij} equals zero. If the jth country achieves the maxima of each of the, X_is then the I_is average to zero and the value of the HDI takes its maximum value of one. Conversely, the greater is the gap between the three X_i^*s and the corresponding X_is of the jth country, the lower is the value of that country's HDI and the lower is its assessed level of human development. The index reaches its minimum value of zero if country j exhibits X_i^m for each of the X_is indicating maximum relative deprivation and minimum human development.

The UNDP treats life expectancy $(X_1 j)$ as a linear function of the number of years a newborn infant would live based on current mortality patterns. Educational attainment (X_{2j}) is itself a composite and is currently defined as follows:

$$X_{2j} = a_1\, LIT_j + a_2\, YRS_j, \tag{3}$$

where a_1 and a_2 are weights set at 2/3 and 1/3 respectively, LIT_j is j's adult literacy rate and YRS_j is the mean years of schooling received per person aged 25 years and over. Observed PPP GDPs per capita (X_{3j}) are divided in multiples of a poverty line y^* as follows:

$$\begin{array}{ll} X_{3j} = y_j & \text{for } 0 < y_j \le y^*, \\ \quad = Y^* + 2\,(y_j - y^*)^{1/2} & \text{for } y^* \le y_j \le 2y^*, \\ \quad = y^* + 2(y^*)^{1/2} + 3(y_j - 2y^*)^{1/3} & \text{for } 2y^* \le y_j \le 3y^*, \\ \quad = y^* + 2(y^*)^{1/2} + 3(y^*)^{1/3} + 4(y_j - 3y^*)^{1/4} & \text{for } 3y^* \le y_j \le 4y^* \end{array} \tag{4}$$

and so on, where y_j is country j's real GDP per capita and y^* is a poverty line real GDP per capita of \$US4,829. This treatment of PPP GDP per capita therefore allows X_{3j} to rise only slightly after exceeding the poverty line.

III Measurement Error

Assume that the HDI reported in the UNDP's *Human Development Report 1992* is subject to fractional random measurement errors in each of its four component variables. Call this the "ovserved" HDI (HDI_j), as defined in the preceding section. The errors are denoted $\varepsilon_{nj,}$ where n=1, ... , 4, which range between $-\mu$ to $+\mu$. Further assume that the "true" HDI ($HDI_j^{\#}$) can be obtained by adjusting the ovserved HDI according to these errors.

The true (adjusted) index may therefore be defined as follows:

$$HDI_j^{\#} = 1 - \left(\frac{1}{3} \sum_{i=3}^{3} I_{ij}^{\#} \right) \tag{5}$$

where $I_{ij}^{\#}$ is the ith true indicator of human deprivation in country j and as before $j = 1, ..., l$. $I_{ij}^{\#}$ is in turn defined as :

$$I_{ij}^{\#} = \left(\frac{(X_i^{*\#} - X_{ij}^{\#})}{(X_i^{*\#} - X_i^{*\#})} \right) \tag{6}$$

where $X_i^{*\#}$ and $X_{ij}^{m\#}$ are the true maximum and minimum values of the ith variable respectively among l countries and $X_{ij}^{\#}$ is the true value of ith variable for country j.

$X_{1j}^{\#}$ and $X_{2j}^{\#}$ are defined as :

$$X_{1j}^{\#} = (1+\varepsilon_{1j})\, X_{1j} \qquad -\mu \le \varepsilon_{1j} \le \mu \text{ and} \tag{7}$$

$$X_{2j}^{\#} = a_1\,(1+\varepsilon_{2j})\, LIT_j + a_2\,(1+\varepsilon_{3j})\, YRS_j \qquad -\mu \le \varepsilon_{2j},\, \varepsilon_{3j},\, \le \mu \tag{8}$$

X_{3j} is defined as :

$$\begin{aligned} X_{3j}^{\#} &= (1+\varepsilon_{4j})\, y_j && \text{for } 0 \le (1+\varepsilon_{4j})\, y_j \le y^*, \\ &= y^*2\,\{(1+\varepsilon_{4j})\, y_j - y^*\}^{1/2} && \text{for } y^* \le (1+\varepsilon_{4j})\, y_j \le 2y^*, \\ &= y^* + 2\{y^*\}^{1/2} + 3\{(1+\varepsilon_{4j})y_j - 2y^*\}^{1/3} && \text{for } 2y^* \le (1+\varepsilon_{4j})\, y_j \le 3y^*, \\ &= y^* + 2\,\{y^*\}^{1/2} + 3\,\{y^*\}^{1/3} && \text{for } 3y^* \le (1+\varepsilon_{4j})\, y_j \le 4y^*, \\ &\quad + 4\{(1+\varepsilon_{4j})y_j - 3y^*\}^{1/4} \end{aligned} \tag{9}$$

and so on, where $-\mu \le \varepsilon_{4j} \le \mu$.

IV. Results

Adjusted HDI values, as defined, were obtained for each country appearing in the *Human Development Report 1992*. The random error range μ was arbitrarily set initially at +/− 10 percent of the observed values of X_i for all j and then increased to 20 and 30 percent. Perhaps more realistically, μ was also treated as a decreasing function of a country's level of human development. For countries classified as low, medium and high human development, μ was set at 10, 20 and 30 percent of observed values respectively.[2] Note that we do not in any way purport the resulting adjusted HDI values to approximate to actual, error free values. We simply posit that the range of hypothetical error to be representative of what one could reasonably expect for most countries.

Results of comparing rankings based on adjusted and observed HDI values are shown in Tables 1 and 2[3]. As can be seen from Table 1, setting μ at 0.10 yields few substantial changes in HDI rankings. Adjusting all components yields ranking changes ranging from + 12 to − 16 positions, but with the overwhelming majority of country rankings changing by 5 positions or less. Thr rank-order (Spearman) correlation coefficient is a very high 0.994. As such HDI rankings seem reasonably robust to measurement errors within this range. Note also that the smallest changes in HDI rankings occur when errors are confined to PPP GDP per capita. All ranking changes lay between + 5 and − 5 positions, with both rank-and zero-order correlation coefficients equal to 1.000. Greatest variation in rankings occurs when changes are isolated to life expectancy. These results are, of course,

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[2] See UNDP (1992) for country lists based on these groups.

[3] All errors ε_{nj} were generated using the @ RAND command in Lotus 1-2-3 Release 2.3.

TABLE 1
OBSERVED VERSUS ADJUSTED HDI

		Random Error Range (μ): +/ – 10%				Random Error Range (μ): +/ – 20%			
		Adjustments to:				Adjustments to:			
		Life Expectancy	Educational Attainment	PPP GDP Per Capita	All Components	Life Expectancy	Educational Attainment	PPP GDP Per Capita	All Components
Ranking Changes									
Range:	Maximum	15	6	5	12	25	11	8	24
	Minimum	–16	–7	–4	–16	–26	–9	–6	–21
Distribution	–16 and below	1	0	0	1	5	0	0	6
	–5 to –15	16	2	0	15	27	10	1	32
	5 to –5	122	157	160	124	97	141	157	84
	6 to 15	21	1	0	20	28	9	2	30
	16 and above	0	0	0	0	3	0	0	8
Standard Deviation		4.85	1.97	1.14	4.98	5.83	3.94	1.87	8.53
Rank-order Correlation coefficients between HDI_j and $HDI_j^{\#}$		0.994	0.999	1.000	0.994	0.987	0.997	0.999	0.983

a reflection of the comparative variation of each variable, with life expectancy exhibiting greatest variation and GDP per capita the least. Moreover, it follows that it is the extent of variation in HDI *values* (and, hence, in the mean of its component variables) which determines the index's overall robustness to measurement error within the range of 10 per cent. That is, its variation is sufficiently large to ensure that in most instances country rankings do not substantially change after corrections for errors, hypothetical or otherwise, are imposed.[4]

Broadly similar results were obtained with the remaining error ranges. While country ranking changes were as high as 33 positions with $\mu = 0.3$ and errors were confined to life expectancy, and 31 positions with μ set at this level for all variables, most tend to be within $+5$ and -5 places. Moreover, zero- and rank-order correlation coefficients are no less than 0.971 and are typically above 0.99. With the error range varying according to country development level classifications, the rank- and zero-order correlation coefficient between adjusted and observed HDI rankings are 0.987 and 0.989 respectively (See Table 2). Within these alternative error ranges, therefore, HDI rankings again seem reasonably robust with respect to measurement error.

V. Conclusion

This paper tested the robustness of the HDI, a composite development level indicator, to measurement error. The HDI was recalculated after each component variable was individually adjusted on the basis of randomly generated proportional errors within given ranges. HDI rankings based on the adjusted index and those based on its observed actual counterpart were found to be very highly correlated. Reflecting the extent of variation in observed HDI values, rankings in the majority of cases changed by no more than 5 positions. Within the error ranges utilised, it was concluded that the HDI is reasonably robust with respect to measurement error, the occasionally large changes in some country rankings notwithstanding. The answer to the question raised at this paper's commencement- does measurement error really matter? – is generally "no", therefore. Finally, it ought be emphasised that this is not an argument for avoiding attempts to improve the accuracy with which aggregate data on economic and social variables are collected and reported. This is an important task, especially for country-specific intertemporal assessments of quality of life.

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[4] This also implies that rankings for the more affluent OECD countries are most susceptible to measurement error, given the generally close clustering of observed values of the HDI component variables for these countries.

TABLE 2
OBSERVED VERSUS ADJUSTED HDI

		Random Error Range (μ): + / – 30%				Random Error Range (μ): + / – 10%, + / - 20% or + / – 30%			
		Adjustments to:				Adjustments to:			
		Life Expectancy	Educational Attainment	PPP GDP Per Capita	All Components	Life Expectancy	Educational Attainment	PPP GDP Per Capita	All Components
Ranking Changes									
Range:	Maximum	33	14	13	29	17	7	8	26
	Minimum	–33	–18	–8	–31	–19	–9	–6	–20
Distribution:	–16 and below	7	1	0	11	3	0	0	4
	–5 to –15	34	14	6	37	30	5	1	34
	5 to –5	78	127	148	62	93	149	157	86
	6 to 15	34	18	6	35	33	6	2	33
	16 and above	7	0	0	15	1	0	0	3
Standard Deviation		9.56	1.97	1.31	6.57	6.78	2.91	1.86	7.57
Rank-order Correlation coefficients between HDI_j *and* $HDI_j^{\#}$		0.979	0.995	0.998	0.971	0.989	0.998	0.999	0.987

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FORMAL HOUSING FINANCE AND LOW-INCOME URBAN HOUSEHOLDS IN INDONESIA: NEVER THE TWAIN SHALL MEET?

BLANE D. LEWIS

The supply of housing finance in Indonesia, especially to low-income groups, has been rather insignificant compared to other developing countries in Asia. This paper reviews some empirical evidence concerning the recent efforts of two state banks, the National Mortgage Bank (BTN) and the Citizens Saving Bank (BRI), to augment the supply of housing credit to low-income urban households. The paper shows that while neither bank has achieved much success at targeting low-income groups *per se,* BRI has made significant strides in channeling finance to households without traditional forms of collateral and has also obtained good results in getting its unsubsidized loans repaid. The paper makes some suggestions for future efforts in shelter-related lending to low-income urban households in Indonesia.

I. Introduction

It is well known that the availability of housing credit is an important factor in realizing housing demand in developing countries (6;8;10). The supply of such credit, though, varies significantly across countries (3). The amount of lending for housing in Indonesia, as a proportion of total housing investment, is quite low relative to other developing countries in Asia at similar levels of income (7). The supply of housing finance to low-income households in Indonesia is particularly low. It has been estimated, for example, that low-income families which comprise approximately one-quarter of the total number of households in Indonesia, receive only about thirteen percent of the total amount of housing credit from all sources and only approximately six percent of the total lending from formal-sector sources (7).

The major source of formal sector lending for housing in Indonesia is the government's National Mortgage Bank (BTN). BTN has been making home-ownership loans to what it defines as both low-and middle-income households since the mid-1970s. BTN has, however, been much criticized for its performance in lending to low-income families in urban Indonesia. Among the criticisms levied against BTN include charges that it has increasingly financed units inappropriate to the needs and financial conditions of low-income residents and that the beneficiaries of its quite highly subsidized loans have largely been relatively high-income households (7;9). Many suggestions have been made over the years regarding ways to enhance BTN's performance in extending housing credits to low-income households. And indeed the government of Indonesia has forced some needed changes in such lending. The extent to which improvements vis-a-vis the above criticisms have been realized is an open question, however.

Potential improvements in its operations notwithstanding, BTN does not now, nor will it ever, have the capacity by itself to satisfy the large and growing demand of low-income households for housing credit. There exists, therefore, significant opportunity for other institutions to assist in augmenting the supply of housing finance to low-income families in Indonesia. The Citizens' Bank of Indonesia (BRI) has often been suggested as one of the few formal sector institutions that might be able to play a useful role in increasing housing credit to low-income households (4;7). The sanguine attitude about BRI's potential derives from its successful track record in other lending sectors. More specifically, it has been argued that BRI effectively extends loans which hold terms and conditions relatively more appropriate to the needs and abilities of low-income households, that it possesses an unmatched capability to reach large groups of low-income families through its extensive branch network, and that it has achieved good results in getting unsubsidized loans repaid (4). BRI has, in fact, recently begun to extend housing loans and by now has accumulated enough experience for an initial evaluation.

The general intent of this paper is to consider some of the recent experience in formal-sector housing lending to low-income households in Indonesia. More particularly, the paper has two objectives. The first goal is to review and evaluate some of the current evidence regarding BTN's housing loans to low-income households. And the second purpose is to present and examine some empirical evidence concerning BRI's recently started housing loan program. The paper proceeds with the BTN evaluation first and then continues with the investigation of BRI's experience. The paper concludes with a summary of the main points and some suggestions for future efforts in low-income household lending for housing in Indonesia.

II. BTN Housing Finance and Low-Income Households

As noted above, the effectiveness of BTN's mortgage finance programs dealing with low-income households has often been questioned over the years. Two of the most frequently voiced concerns relate to the kinds of units that BTN has financed and the targeting of the housing finance to aid in the purchase of those units. The world Bank, for example, claimed that BTN's lending during Repelita III and the early years of Repelita IV moved increasingly away from financing the supply of smaller, less expensive houses towards providing for larger, more expensive (and more profitable) homes (9). This was apparently, at least in part, due to the increasing role that private developers began to play in constructing BTN-financed houses.[1] As a result of the shift towards building houses that were larger and more costly, beneficiaries tended to be drawn more and more from higher income households the Bank noted. In addition, the Bank asserted that civil servants and military personnel benefitted disproportionately, to the obvious detriment of other urban households, from BTN's lending schemes (9).

In the mid-1980s, the Indonesian government and BTN initiated some policy and programmatic changes that were designed, at least in part, to overcome the above mentioned targeting problems (7). In particular, the government began to allow private developers to construct units smaller than 36 square meters (which previously only Perumnas was allowed to do), thereby hoping to increase the supply of houses affordable to low-income households. In addition, the government newly regulated that at least 70 percent of all houses financed by BTN must be 36 square meters or smaller. Also, in an attempt to concentrate subsidized funds on those really in need, BTN fixed an upper bound on applicant income of Rp. 300,000 per month.[2] Finally, BTN officially discontinued the practice of giving preferential treatment to civil servants and the military in the allocation of housing finance.

Struyk and colleagues report that BTN did, in fact, realize some progress towards reorienting its lending towards smaller houses after the reforms were introduced (7). In 1987 and 1988, for example, over 80 percent of aggregate BTN lending was allocated to the production of units 36 square meters or smaller. During the previous year, prior to the policy changes, only about 60 percent of the units constructed with BTN finance were within that size range. On the other hand, the above authors note that, as of 1989, a substantial share of BTN's subsidies continued to be focused on households with relatively high incomes and/or on civil servants and military personnel. Consider Table I below which provides some characteristics of both BTN borrowers/homeowners and all homeowners in urban Indonesia. As the table shows, BTN housing loan recipients were apparently still, in general, wealthier and much more likely to be employed by the government than the typical urban homeowner in Indonesia.

TABLE I
HOUSEHOLD CHARACTERISTICS: BTN BORROWERS VS. ALL URBAN HOMEOWNERS, 1988.

	BTN/Perumnas	BTN/Private	All Urban Homeowners
Median HH Income (Rp./Mo.)	235,000	325,000	160,000
Median Value of Assets (Rp.)	250,000	447,500	171,000
Average HH Size	5.6	4.8	5.4
Percent Government Employees	70.8	48.9	18.7

Source: (7).

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[1] Initially, BTN provided finance for houses built by the National Housing Development Corporation (Perumnas) only. In the late 1970s, however, BTN began to finance homes built by private developers also. In recent years, the private sector has begun to develop an increasingly larger share of the units financed by BTN.

[2] At the end of 1993, U.S.$ 1.00 was approximately equal to Rp. 2100.

What has been BTN's more recent experience vis-a-vis the supply and demand of houses financed with its money? Currently[3], most BTN finance goes towards the production of three main types of houses: core, low-cost, and medium-cost.[4] Core houses are the smallest units, with a maximum size of 21 square meters. They are designed for households with incomes less than Rp. 450,000 per month.[5] Core unit loans are set at a maximum size of Rp. 8.5 million and carry interest rates of 12 per cent. Low-cost houses are those that are smaller than 70 square meters and are intended for households with income less than Rp. 900,000 per month; their maximum size is Rp. 20 million and they carry a 17 percent annual rate of interest. Medium-cost units have no restrictions vis-a-vis size or household income. The upper bound on the loan size for the latter units is Rp. 300 million and the interest charged is 18 percent. All loans described above are for a 20 year term.

Funding levels for the various types of houses over the past several years are shown in Table II below. As can be seen from the table, total BTN funding rose substantially from its initial levels and peaked in 1988/89; it has declined steadily thereafter. The overall drop in recent years is mostly a function of decreases in funding for low-cost housing, which has declined precipitously since 1988/89. Medium-cost unit financing originated in 1990/91 and increased slightly the next year, although not enough to offset decreases in loans for low-cost homes. Real levels of core-house financing have remained essentially constant since declining from their peak in 1988/89. As the table shows, financing for core units has consistently increased in relative terms since 1986/87 (with the exception of the slight drop in 1989/90) and now stands at just above 45 percent of total disbursements.

TABLE II
BTN LOAN DISBURSEMENTS 1986/87 TO 1991/92 (Constant Rupiah, Millions)

House Type	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92
Core	18,215	64,823	147,755	102,603	103,557	104,964
Low-Cost	99,976	187,047	287,538	225,276	119,991	73,499
Medium-Cost	0	0	0	0	30,509	54.310
Total	118,191	251,870	435,292	327,878	254,058	232,773
% Low-Income	0.154	0.257	0.339	0.313	0.408	0.451

Source: (1).

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[3] The information provided here is from (2).

[4] BTN has also begun to make loans for serviced lots, shop houses, home improvement, and rental housing construction. These efforts are, however, still in the beginning stages of development.

[5] Here, "household income" refers to "applicant and spouse income".

It appears therefore, that recently an increasing share of BTN housing finance has, indeed, been going to enhance the suply of the smallest units, that is, those houses that are designed for low-income households. A separate and important question concerns whether those units have, in fact, been purchased by low-income households. As shown above, an increasing relative supply of small houses does not necessarily mean that low-income households are increasingly gaining access to those units. Recent and comprehensive data on the household characteristics of BTN core house buyers are unfortunately unavailable. However, some partial information garnered from BTN concerning the recepients of core unit loans is available and may help to shed some light on the question. Consider Table III below, which provides the median household income and employment status of BTN core unit borrowers in Jabotabek[6] for October and November of 1993.

TABLE III
HOUSEHOLD CHARACTERISTICS OF BTN CORE UNIT LOAN RECIPIENTS IN JABOTABEK, OCT./NOV., 1993.

Median Household Income (Rp/Mo.)	336,000
Percent Government Employees	63.2

Source: BTN Data Files.

The table shows that, during the period concerned, the median monthly household income of Jabotabek core-unit buyers was Rp. 336,000. The term "household" here refers to "applicant and spouse", according to official BTN literature. Privately however, BTN officials acknowledge that, much of the time, loan applicants do not admit of any secondary income (either from the household head or from the spouse); the intended effect, of course, is for the household to remain under the income ceiling and thus qualify for the subsidized funds. To the extent that secondary income is not, in fact, included, then the figure shown above substantially underestimates the total amount of the applicant's household income. Struyk and colleagues, for example, have estimated that more than 40 percent of total household income may be derived from sources other than the primary earnings of the head of household (7). If this is true, then the income figure reported above may be closer to Rp. 560,000, Regardless of the exact actual figure, it seems clear that the household income of the BTN borrowers is probably significantly greater than the income of the typical homeowner household in Jabotabek.

The table also shows that 63.2 percent of the total number of BTN borrowers were employed by the government. This is clearly higher than the comparable figure for urban Jabotabek as a whole. As noted above, in 1988, just 18.7 percent of all urban homeowners were employed by the government. The current figure for Jabotabek is unlikely to be significantly greater than that estimate.

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[6] Jabotabek is the Indonesian acronym for the Jakarta-Bogor-Tangerang-Bekasi region.

It is important to emphasize that the above data on BTN borrowers were not generated from a random sample of all such borrowers. Caution should be used therefore in drawing inferences about the entire set of BTN core-unit loan recipients and in making comparisons between those borrowers and the general urban Jabotabek homeowner population. The present data do, at least, seem to suggest, however, that the beneficiaries of BTN loans for the smallest units may still be somewhat richer and more likely to be employed by the government than the typical urban homeowner in Jabotabek. That is, BTN financing continues, most likely, to be poorly targeted to low-income households.

Recent BTN experience is, therefore, mixed at best. On the one hand, an increasing share of BTN lending does appear to be going to augment the supply of the smallest, most affordable units. On the other hand, and more importantly, the actual beneficiaries of that lending apparently continue, for the most part, to be relatively high-income households and/or those that are employed by the government. Indications are, therefore, that low-income urban household demand for housing credit is not being met. And it could not possibly be met by BTN alone, of course. It has been estimated that by 1997 total demand for housing investment by those purchasing the smallest units will reach a staggering Rp. 4,875 billion (in 1987 Rupiah terms) (7). The difference between the latter figure and current levels of BTN funding reported above is indeed significant.

Given the enormity of the excess demand of low-income households for housing finance, it appears as if there is ample opportunity for other lenders to become involved in the market. BRI has often been suggested as the only such lender from the formal financial sector that could possibly be expected to play a useful role in increasing housing credit to low-income households (4). As noted at the outset, BRI has had a long and fairly successful experience with lending to relatively low-income households throughout Indonesia. And BRI has, in fact, recently begun to extend credits for housing activity. Below, some empirical evidence is presented concerning BRI's early experience with shelter-related lending. The evidence is derived from a sample survey of the housing loans extended by BRI's units in Jabotabek.[7]

III. BRI Housing Finance: Initial Empirical Evidence

The BRI housing lending program examined below began operations early in fiscal year 1990/91. Since its inception, the BRI program has made an estimated 8,300 housing loans (in the Jabotabek area only), amounting to over 16 biliion Rupiah.[8] The BRI housing program is rather small, therefore, at least compared to the BTN effort. Over the last three years for which data exist, BTN has extended over 95,000 loans for core houses alone. And these loans amount to nearly 425 billlion Rupiah (in current terms). Although BRI housing lending is currently relatively small, if it turns out that it's lending is more appropriate to informal sector operations, then its approach could serve as a model for other similar efforts, thus further augmenting supplies of housing capital.

Housing operations in the informal sector are, in general, very small in scale and carried out in an incremental fashion without fully registered title to the underlying property. Loans, it is argued, should therefore be made for the purpose of upgrading existing dwellings and should be small in size, short-term, and should not require formal collateral. In addition, it has been argued that the loans should carry an interest rate that at least approaches the market rate so that costs can be covered and sufficient funds can be generated and sustained over the long-term (4). Below, the nature of housing loans made under the BRI credit program is described.

Table IV below provides some information on the characteristics of BRI housing loans. More specifically, the table shows, in panels A, B, C, and D, the distribution of BRI loans by use, size, term, and collateral requirements, respectively. As can be seen from the table, the vast bulk of BRI loans are used to upgrade existing dwellings. Over 82 percent of the total number of loans are used to upgrade existing units for the owner's personal use and another 14 percent are utilized to upgrade existing housing to rent out. As the table shows, only a vary small percentage of the total loans are used to construct new housing, either for own use (1.23 percent) or to rent out (2.14 percent).

Apparently, BRI housing loans are, in general, quite small. Panel B of the table provides the complete size distribution of loans. As can be seen, almost 40 percent of the loans are for less than 1.0 million Rupiah and just over 60 percent of the loans are for less than 1.5 million Rupiah (the median size loan). Approximately 21 percent of the loans are for amounts greater than 2.0 million Rupiah and less than 10 percent are for sums larger than 3.0 million Rupiah.

Loan maturities are short for BRI housing loans. Over 12 percent of the loans are for a period of one year or less. Almost 75 percent of the loans are for a term of 24 months (the medjan size) and another one-quarter are for periods of less than 24 months. Only just over three percent of the loans are for periods longer than 24 months.

Finally, as can be seen from the table, collateral requirements for BRI housing credits are rather less stringent than those of other banks. Over 40 percent of the loan recipients possessed only a letter from their employers as collateral. An additional 33 percent of the loan recipients used proof of ownership of non-fixed assets (such as a motorcycle) as collateral. Only 2.5 percent of the loan recipients

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[7] More specifically, the following section is based on an analysis of some 2200 BRI housing loans. These 2200 loans represent the entire set of all such loans extended during the period from June 1990 (when the program started) to July 1993 by a group of 54 BRI unit kotas. The latter were randomly selected from the collection of all 204 such units in the Jabotabek area. Bank personnel from each of the chosen 54 units were asked to provide information about both individual loans and borrowers. The requested data were derived from the actual loan applications and were recorded on a survey form mailed to the BRI units. The information was collected and processed between August and November 1993.

[8] These estimates are based on the survey results.

offered certified, legal title to land as security for the loan while 12 percent offered uncertified title as collateral.

TABLE IV
BRI HOUSING LOAN CHARACTERISTICS

Panel A: Loans by Use

Use	Percentage
Upgrade for Own Use	82.3
Upgrade to Rent	14.4
Construct for Own Use	1.2
Construct to Rent	2.1
	100.0

Pabel B: Loans by Size

Size Category	Percentage
< 0.5	4.2
0.5 to < 1.0	34.8
1.0 to < 1.5	21.2
1.5 to < 2.0	18.7
2.0 to < 3.0	11.2
> 3.0	9.9
	100.0

Panel C: Loans by Term

Term (Months)	Percentage
< 12	0.5
12	11.9
18	11.6
24	72.6
36	3.5
	100.0

Panel D: Loans by Collateral

Collateral Type	Percentage
Certified Land Title	2.5
Uncertified Land Title	12.0
Non-Fixed Assets	32.6
Letter of Employment	43.1
Other	9.8
	100.0

Source: BRI Housing Loan Survey.

Based on the above, BRI housing lending certainly appears to be appropriate to the needs of those residents in the informal housing sector. Loans are, in large measure, employed for upgrading existing homes and loan sizes are small and maturities are short. Most importantly perhaps, the collateral requirements of BRI lending appear to be suitable for the land ownership status of most low income households. In addition, the rate of interest charged, 32 percent, corresponds closely to the market rate and seems adequate to cover bank operating costs and default risks and ensure a sufficient and sustainable pool of funds.

The congruous nature of BRI loans does not mean, however, that the credits are, in fact, being extended to low-income urban residents. TableV below provides some data on the income, household size, and employment status of BRI borrowers. As the table shows, the median monthly income of BRI loan recipients was Rp. 325,000. Note that this figure represents applicant income only and not household income. As such, it appears that the income level of BRI borrowers is not particularly different from that of those who received core-unit financing from BTN, as estimated above.

TABLE V
HOUSEHOLD CHARACTERISTICS OF BRI BORROWERS

Median Applicant Income (Rp./Mo)	325,000
Average Household Size	4.9
Percent Government Employees	72.7

Source: BRI Housing Loan Survey.

The table also reports that 72.7 percent of the borrowers were employed by the government. The comparable figure reported above for BTN borrowers was 68.7 percent. In general therefore, the table shows, somewhat surprisingly, that BRI loan recipients do not appear to be very much different from BTN loan recipients, at least in terms of income and occupation of head of household. Moreover, it seems rather certain that both BRI and BTN loan recipients are better off financially and more likely to be employed as civil servants than the typical urban homeowner.

BRI loan recipients are, however, significantly different from BTN borrowers in at least one important regard: loan repayment. The BRI survey data showed that only approximately 6.5 percent of active BRI housing loan recipients were in arrears on loan repayment. On the other hand, Struyk and coauthors report that almost 50% of BTN loans were in arrears, as of 1988 (7). Moreover, nearly 30 percent of all outstanding BTN loans, amounting to approximately Rp. 73.3 billion, were over three months in arrears as of that time, according to Struyk and colleagues (7).

IV. Summary, Conclusions, and Recommendations

BTN has achieved mixed results, at best, in its recent efforts to extend housing finance to low-income residents. It is true that an increasing share of the total volume of BTN lending is apparently being allocated to augment the supply of the smallest housing units. Unfortunately, it is also apparently true that the bulk of BTN's highly subsidized funds continues to accrue to relatively high-income households and/or to government employees. In addition, BTN's recent track record concerning loan repayment has been less than auspicious, to say the least.

BRI's initial experience with housing sector lending has also been somewhat uneven. On the one hand, the attributes of BRI's housing loans do appear to be relatively more suitable to informal sector operations. As was shown above, the purpose to which BRI housing loans are put and the size, term, and collateral requirements of the loans appear to correspond well to low-income household needs and abilities. On the other hand, however, BRI also seems to have been less than effective in targeting loans to low-income households: recipients of BRI housing loans also appear to be relatively well-off financially compared to the average urban household and, in addition, are much more likely to be employed by the public sector than the typical urban resident.

BRI might perhaps be able to improve its income targeting of housing finance if it placed some restrictions on the maximum size of its loans. Some analysts have suggested, for example, that a maximum loan size of what amounts to approximately Rp. 1.5 million (in current Rupiah terms) might not be inappropriate in the Indonesian context (4). As was noted above, this is currently the median size of BRI housing loans, as estimated from the sample survey. The sample data indicate that the median monthly income of borrowers receiving loans less than or equal to Rp. 1.5 million was Rp. 250,000.

In addition, BRI might be able to better focus its finance on lower income households by improving certain of its loan application procedures. In this regard, it might attempt to estimate total household income rather than just applicant income, as is currently the case, and, in addition, place some upper bound on that income as a condition of application, approval. Also, the sample survey indicates that applicant income varies significantly by location (it is lowest for those residents from Bogor) and also by age (the younger the applicant, the lower the income); it might be possible therefore for BRI to improve its overall income targeting by channeling more funds to those households who live in relatively poorer areas and/or to relatively younger heads of households. Interestingly, applicant income is not significantly associated with gender; focusing loans on women, therefore (as is often suggested), may not do much to improve income targeting, regardless of its other possible merits.

BRI has, however, demonstrated great effectiveness at serving another heretofore neglected and relatively disenfranchised group of urban households: those without access to typical forms of collateral with which to secure loans. As demonstrated above, households without certified title to land constitute, in fact, the vast majority of BRI housing credit recipients. It is important to recognize that this group of households would most likely not otherwise gain access to housing finance, at least from formal sector sources, if not for the BRI program. Other financial institutions should pay close attention to BRI's experience in this regard as they design new housing loan instruments.

BRI's success at serving households without clear title to land, however, should not divert attention away from the need for the Indonesian government to improve its land titling operations. Although the National Land Agency (BPN) has recently embarked, with World Bank assistance, on a 25 year program for registering non-forest land parcels across all of Indonesia, more will need to be done in the short-term to help alleviate the special problems associated with unregistered land rights in urban areas. The now defunct PRONA program achieved considerable success in speeding up the large scale registration of land rights in many rural areas of the country in the 1980s (5), the program could serve as a model for more immediate efforts in urban land title registration. While the land certification process is being implemented, measures might also be taken to require developers to compensate holders of all valid land titles (that is, unregistered as well as registered titles) at the same rate as certified titles, should redevelopment occur.

Finally, BRI has also achieved significant success in the area of loan repayment. It has clearly shown that it is, in fact, quite possible to provide unsubsidized loans to borrowers and get the loans repaid. This demonstrates, among other things, that housing sector loan subsidy programs like BTN's are, in addition to being expensive for the central government to maintain, probably also unnecessary. Most importantly perhaps, interest rate subsidies discourage the participation of other formal-sector housing lenders. If the government were to eliminate its subsidies of BTN, it is quite possible that other (heretofore crowded-out) lenders might find it profitable to enter the market, thereby expanding the supply of lonable funds for housing development. And an increased supply of housing credit would certainly be beneficial to potential Indonesian homeowners, in general. How much benefit low-income households would drive from the increased supplly is an open question, however. The recent experiences of BTN and BRI show the extreme difficulty of reaching low-income urban households with formal housing credit and suggest that an intensification of efforts in this area is required.

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BUSINESS REPRESENTATION AND MACROECONOMIC DEVELOPMENTS IN TRANSFORMING ECONOMIES

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By the end of 1980s political changes in Central and Eastern Europe (CEE) resulted in the collapse of old communist political regimes and their consequent economic systems. Most of CEE economies started a process of transformation. Although macro-stabilization is necessary for successful transformation more attention must be given to micro issues like business. Under the old economic system there was no need to represent business towards the state, because there was no independent business. Today, there is an authentic need for adequate business representation within the decision making process. Based on Croatian experience it seems that business is not well represented in social partnership between: the state, trade unions and business in transforming economies. Compulsory organization are usually still influenced by politicians (like Chambers of commerce) and (seemingly) do not represent business interests well enough. Because of deep economic crisis (embedded in falling production and high inflation) and conflicts between the predominant state sector (large firms) and private one (small firms), it is difficult to point out common business interests. Although, some institutional solutions must be found such that business interests are expressed in the public policy arena, in the tumultuous process of transformation (where speculative capital often plays an important role) one should not expect homogeneous business representation to develop soon. Maybe the best advice that an economist can give would go not to business, but to the state to realize that without viable business their jobs and privileges will disappear quite soon.

1. Introduction[1]

By the end of 1980s tremendous political changes have happened in Central and Eastern Europe (CEE). In the literature 1989 is usually taken as a year when political changes started in CEE countries. Althouth the process of political changes embedded in disintegration of old countries (former Yugoslavia and probably Czechoslovakia) and formation of new ones (Slovenia, Croatia, etc.) has not finished yet, I will mostly concentrate on the following countries: Bulgaria,

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[1] An earlier version of this paper has been presented at the conference on Business Interest Associations in Eastern Europe and Russia at the University of Warwick, Coventry, Sept 11–12, 1992, and benefitted from discussions there.

Croatia, Czechoslovakia, Hungary, Poland and Romania. Political consensus for transformation has taken place in all these countries in 1990 through free parliamentary election (see: ECE, 1991). Those changes resulted in the collapse of the communist political regimes and their consequent economic structures. This has been preceded by a long-lasting economic crisis in those countries (see Table 2). Most of CEE economies have undertaken a lengthy procedure of transformation. The term "transformation" will be used throughout the text as a shorthand for the: "process of transformation of command economies to mixed market-oriented ones". Transformation (from the point of view of this paper) means general economic reform which encompass, among other things: privatization of state ownership, price liberalization, imposing hard budget constraints on enterprises, abolishing large subsidies, opening to foreign trade, fiscal reform, etc (see Gelb and Gray, 1991). Macro-stabilization is considered a necessary prerequisite for transformation process and in literature much attention has been given to macro aspects of transformation (like: inflation, monetary and fiscal reform, unemployment, etc.). But, micro adjustment of enterprises has been neglected so far. One must bear in mind that micro-changes are crucial for the success of reforms (Svejnar, 1991). In short, more attention must be given to business.

But, what is business? "A business is a company, public corporation, partnership or individual which sells goods and/or services with the intention of generating a surplus from trading activities for its owners." (Coleman and Grant, 1988:468).

What were the main characteristics of "business" in CEE countries before transformation has started? At least four qualities must be pointed out (having in mind the aim of this paper). First, firms mostly acted accordingly to central plan directives (command economy), thus market signals (like prices) had no influence on their decision-making and allocation of resources. Success was therefore measured in percentage points of plan realization (or some other arbitrary measure) and not realized profits.

Second, most firms were state owned and had so called "soft-budget constraints", meaning that they could stay in business with costs greater than their receipts and that the state would pay for the difference. Private ownership was either completely banned from some sectors of the economy or severely restricted (for example to five employees in handicraft at most or 10 hectares of arable land in agriculture) in others (for more details see: Bicanic and Škreb, 1991b). As a result of that (and some other reasons) there was a lack of small firms in CEE economies. These are the well known "black holes" in the distribution of the size of firms (see Bicanic and Škreb, 1991a; Nooteboom, 1992).

Third, markets were to a great degree regulated (with high administrative barriers to entry), monopolistic and closed to foreign competition. For managers of such large monopolistic companies it was more important to be politically well connected, than to be competent. Therefore, companies were engaged in rent seeking activities rather than in the competition race.

Fourth, there was strong influence of politics and politicians on business. Although difficult to measure, the influence of Communist party onto business was strong either through central plan (which had to be approved by politicians) and party organizations within firms or through appointment by the ruling party of the general manager of the firm. The state (ruled by the political party) and "business community" influenced by the same party had (almost) identical interests. More than 90% of value added was produced within state owned enterprises (see Table 1). Thus, there was no need to represent "genuine business interest", because under the mentioned constraints it is clear that under our definition of business it did not actually exist in those economies.

Registered private sector[2] usually represented less than 10% of value added and due to political constraints virtually had no way to represent its interest in the public policy arena. (see Bicanic and Škreb, 1991b).

One must point out that during the previous political and economic system in CEE economies Chambers of the economy, or trade (as associations of all companies) did exist, but their representatives were approved by the party and were (almost always) on the same line as Party officials. Therefore, in command economies there was no open conflict of interest between the state and business. But, with the collapse of the old economic structure the situation has changed.

When transformation begun, the situation started to change as well. Today, there are no more central directives and plans for companies, the economy is relying more on markets as allocative mechanisms and hard budget constraints are being imposed. Old companies are being privatized and disintegrated into smaller (presumably) more viable ones. New private firms are being created daily (see Table 4). The ruling party has at least officially restricted its (overt) influence on business. Interestingly, in spite of negative legacy from the past, the role of the state in transformation seems to remain very important (Bicanic and Škreb, 1992).

If old links do not exist any more, there is a need for adequate business interest representation in transforming economies. Within the decision making process (either on strategic or daily matters) business interests should be heard. But, (seemingly) business is still not well represented in social partnership between: the state, trade unions and business in transforming economies.

The aim of this paper is to show that within the process of transformation business community must be better represented in economic policy issues. This does not have only political or short term economic relevance, but it is crucial for the success of transformation and further development of those economies. Most authors on the subject agree that transformation will be more difficult, last longer and cost much more than previously expected (Bicanic and Škreb, 1992). Although the paper will closely examine the case of Croatia, conclusions (hopefully) might have wider implications for other transforming CEE economies.

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[2] unregistered or paralell economy is usually considered to be substantial in CEE economies. Estimates run as high as 30–40% of total production. Paralell economy is considered to be privately owned. For more details see for example: Bicanic and Škreb, 1992b).

It must be pointed out that Croatia is a special case for at least two sets of reasons. The first ones are linked with the fact that Croatia (formerly part of Yugoslavia) had a so called self-managed type of economy and exhibited somewhat different characteristics than centrally planned command economies (see: Schrenk et al. 1979). Second, due to war damages, economic situation in Croatia is more difficult than in other transforming economies, although all of them are faced with deep economic problems. But, nevertheless business representation does have some common characteristics with other CEE economies.

The paper has three main parts. The first one will briefly describe recent economic and political changes in Croatia, comparing it to some other CEE economies and their performance. The second part will depict compulsory and voluntary business associations in Croatia and try to assess problems of business representation in the light of macroeconomic development. The last part will summarize obtained results.

2. Present Situation in Croatia

2.1. Recent political developments

Croatia has emerged as a newly found European state from disintegrating Yugoslavia. A brief recent history of main events looks like this: economic reforms started in former Yugoslavia in 1989.[3] At that time tensions among Republics (constituent parts of former Yugoslavia) were already very high. The first multiparty elections were held in Croatia in Spring 1990, which at that time was still part of Yugoslavia. Their results threw the then only political party, a Communist one, out of power, and a new Parliament was established in May 1990.

In May 1991 a referendum was held where 94% of electorate voted in favor of sovereign and independent state of Croatia. Based on this result, the Declaration of Independence was Passed in the parliament in June 1991. The new Constitution was passed by the Parliament in December 1991. Croatia became internationally recognized on January 15, 1992 and was admitted into UN on May 22, 1992. The second multiparty elections for the Parliament and the President were held in August 1992 and the same party (Croatian Democratic Union) and the President (Franjo Tudman) remained in power. The constitutional system includes bicameral Parliament (House of Representatives and House of Municipalities) as representative and legislative body. A so called half-presidential system was adopted where the President has relatively large powers.

Civil unrest (provoked by a Serb minority) started in Croatia in August 1990 in the region of Knin. Roads and rail lines were blocked in this and some other areas causing great troubles in the whole economic system (and political as well, but I will not discuss it here). Large scale troubles started in the Summer 1991 and an aggressive war against Croatia, by the so called Yugoslav army (controlled by Serb generals) and Serb irregular troops, started by the end of Summer 1991. Unfortunately the war has not completely stopped yet, and some parts of Croatia are still under UN supervision.

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[3] for a brief history and former economic developments in Yugoslavia see Schrenk et al. (1979) and for description of latest economic developments in Yugoslavia see Bicanic and Škreb (1991b).

A Serbian attempt to create "Greater Serbia" has provoked an even bloodier war in the neighboring state of Bosnia and Herzegovina causing hundreds of thousands of refugees out of their homes. Today in Croatia alone there are about 300,000 refugees from occupied parts of Croatia and more than 400,000 from Bosnia and Herzegovina. Financially refugees represent a very heavy burden for the Croatian economy. Costs of refugees are estimated to be 100 mil. US $ monthly, in spite of humanitarian help from the World. The war in Bosnia and Herzegovina has huge economic consequences on Croatia, already impoverished by its war for independence.

2.2. *Recent economic developments*

Croatia is a new independent country and a short comparison with some CEE economies can be useful. I have chosen countries based on their similarity and availability of data. Data can be seen from Table1.

TABLE 1
INDICATORS FOR CENTRAL AND EAST EUROPEAN ECONOMIES IN 1989.

	A	B	C	D	E	F
Bulgaria	9	111	20.3	2255.56	9.2	45.32
Croatia*	4.7	57	15.7	3340.43	3.6	22.90
Czechosl.	15.6	128	50.3	3224.36	7.9	15.71
Hungary	10.6	93	29.1	2745.28	20.6	70.79
Poland	37.9	313	68.4	1804.75	40.6	59.36
Romania	23.2	238	53.5	2306.03	1.4	2.62

	G	H	I	J	K	L
Bulgaria	6.3	67	NA	0	7.9	10.0
Croatia*	1300	55	91.5	9	2.8	3.5
Czechosl.	1.3	77	97	0	14.3	17.1
Hungary	18	61	86	0.5	10.9	12.4
Poland	640	61	82	0.3	15.6	17.4
Romania	2.5	52	NA	0	6.1	3.8

Source: Škreb (1992)

A—mid-year population in millions,
B—area in 000 of squared km,
C—GDP, in billions of 1989 US $,
D—GDP per capita,
E—external debt, in billions of US$,
F—% of debt in GDP (E/C),
G—inflation rate, in % change to previous year,
H—urban population, in % of total,
I—state owned firms as % of total value added,
J—rate of unemployment, in %,
K—exports, in billions of US $,
L—imports, in billions of US $.

Croatia is a relatively small, and in 1989 it was a relatively rich country (measured by GDP/pc), compared to other CEE countries. Very high inflation and unemployment were signs of economic troubles. The share of socially owned value added is high, but due to unregistered economic activity (like in all CCE countries) it was probably smaller. Compared to Hungary, Poland and Bulgaria exteranl debt was small. But, in foreign trade, when compared to Czechoslovakia, Hungary and Poland, Croatia has been a relatively closed economy.

Most of former socialist countries face a long term economic decline which can be seen from Table 2. High rates of growth, which were often pointed out as a "great success" of socialism, have withered away in the eighties in virtually all countries and all of them are confronted with a sharp decline in production in 1990. Croatia was no exception. It can be inferred that those countries are not facing a cyclical decline in the nineties, but a long term structural crisis in the last two decades. Therefore remedies for such illnesses must be radical.

TABLE 2

DYNAMICS OF NET MATERIAL PRODUCT IN CEE ECONOMIES

— % change to previous year

	Bulgaria	Croatia*		Hungary	Poland	Romania
1970	7.1	7.0	5.7	4.9	5.2	6.8
1971	6.9	8.1	5.5	5.9	8.1	13.5
1972	7.7	2.8	5.7	6.2	10.6	9.8
1973	8.1	4.0	5.2	7	10.8	10.7
1974	7.6	8.7	5.9	5.9	10.5	12.3
1975	8.8	2.9	6.2	6.1	9	9.8
1976	6.5	4.3	4.1	3	6.8	11.3
1977	6.3	8.5	4.2	7.1	5	8.7
1978	5.6	7.6	4.1	4	3	7.2
1979	6.6	6.0	3.1	1.2	−2.3	6.5
1980	5.7	1.2	2.9	−0.9	−6	4.2
1981	5	1.5	−0.1	2.5	−12	−0.4
1982	4.2	−1.3	0.2	2.6	−5.5	4
1983	3	−1.5	2.3	0.3	6	6
1984	4.6	2.1	3.5	2.5	5.6	6.5
1985	1.8	0.1	3	−1.4	3.4	−1.1
1986	5.3	2.8	2.6	0.9	4.9	3
1987	5	−0.1	2.1	4.1	1.9	0.7
1988	2.4	−0.9	2.4	−0.5	4.9	−2
1989	−0.4	−1.5	1.3	−1.1	−0.2	−7.9
1990	−13.6	−9.2	−3.1	−5.5	−13	−10.5

Source: ECE (1991)

*Social Product. Own computation from SYC—various years.

Other macroeconomic indicators for Croatia from 1970 to 1990 (when Croatia was part of former Yugoslavia) point out to deep economic crisis as well (see Table 3). Unemployment is constantly on the rise since 1970. Double digit inflation turned to three digit by late eighties (and even four digit in 1989). Social product[4] per capita has been either falling or stagnating during the whole period from 1980 to 1990, and investment has been falling as well. The decline of employment is no surprise in such critical economic conditions. Variables for 1990 were partly affected by political and terrorist events. Eighties can be described as a period of deep and worsening economic crisis in Croatia.

TABLE 3

MAIN MACROECONOMIC INDICATORS FOR CROATIA 1970–1990.

	A	B	C	D	E	F
1970	4.29	10.7	106.3	69.0	103.76	98.90
1971	4.32	16.1	107.5	68.2	103.83	106.25
1972	4.57	16.3	102.4	81.4	104.39	96.40
1973	4.84	18.7	103.6	63.9	101.34	97.76
1974	5.12	25.1	108.3	49.9	103.77	115.27
1975	6.33	27.4	102.5	55.9	105.18	106.95
1976	6.79	9.0	103.9	68.7	103.28	111.50
1977	6.53	13.4	108.1	59.5	105.27	124.20
1978	5.59	14.1	107.2	62.1	104.37	111.47
1979	5.37	23.1	105.6	44.6	104.26	103.06
1980	5.49	32.3	100.8	52.1	103.21	93.59
1981	6.16	44.8	101.2	62.7	102.90	93.74
1982	6.76	30.2	98.7	72.8	101.65	89.71
1983	7.03	40.5	97.7	85.4	101.08	91.83
1984	7.36	56.2	102.0	85.0	101.54	81.24
1985	7.43	75.5	100.1	89.5	102.17	102.42
1986	7.09	91	102.3	72.5	102.84	102.40
1987	7.21	120.6	99.8	84.3	102.07	87.76
1988	8.17	200.1	98.9	86.5	99.75	93.80
1989	8.42	1200	98.5	49.4	99.63	91.29
1990	11.08	609.5	90.7	66.2	96.91	74.92

Source: computed from SYC–various years
A—unemployment rate, in %,
B—inflation rate in %,
C—social product per capita, index
D—export/import, in %,
E—Total employment, index
F—Investment of the social sector, index

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[4] Social product is a measure of value-added similar to net material product in CEE economies.

In 1991 and 1992 this dramatic situation has even worsened. Monthly data about recent macroeconomic developments in Croatia are given in Table 4. From the economic point of view 1991 and 1992 can be considered "war years". Social product in 1991 has been estimated at about 10 billion US $, but in 1992 it will be no more than 7,5 billion (or about 1500 per capita). This is less than half its value in 1989. Due to rising public expenditure (mostly because of the war) and falling revenue budget deficit is considered to be one of the largest problems of Croatian economy. Budget deficit was estimated at about 5% of GDP in 1991 and more than 15% of GDP in 1992 (Croatian economic trends, 1992).

TABLE 4

MONTHLY MACROECONOMIC INDICATORS FOR CROATIA

(indexes, seasonally adjusted data, 1990 = 100)

	A	B	C	D	E	F	G	H
Jan 91	95.5	84.1	103.2	86.2	103.4	94.83	124.99	124.0
Febr	89.2	80.6	101.0	87.6	110.5	92.81	129.44	127.7
March	84.9	74.9	97.40	55.7	107.8	91.52	134.54	132.7
April	84.0	83.1	91.56	87.1	109.6	90.11	135.25	143.2
May	81.4	83.8	93.53	69.2	119.1	88.4	138.06	154.7
June	77.2	78.8	86.74	72.4	107.2	86.96	141.76	160.6
July	71.0	89.1	81.92	62.2	107.2	85.97	142.20	167.9
August	58.5	70.2	81.60	55.2	109.8	84.85	141.74	175.1
Sept	55.9	55.8	65.25	45.1	106.5	83.49	140.94	178.4
Octob	57.7	55.8	52.61	53.8	119.1	82.55	135.6	182.5
Novemb	56.6	55.3	49.38	42.6	122.0	81.84	135.07	180.7
Decemb	56.2	52.6	47.62	30.3	112.3	81.11	135.7	172.8
Jan 92	58.0	59.7	49.53	30.2	114.1	80.2	137.08	164.1
Febr	58.8	58.0	47.25	35.7	117.2	78.88	139.18	161.3
March	55.1	54.8	44.90	26.4	118.4	79.43	140.91	160.5
April	54.0	59.4	41.70	34.1	119.0	78.59	143.62	161.6
May	50.3	57.9	44.54	21.8	132.1	77.63	143.08	167.2
June	50.7	59.2	40.41	23.7	113.8	76.69	146.68	170.0
July	54.3	73.4	35.83	15.7	124.3	76.09	147.31	169.4
August	–	60.6	–	20.0	122.6	75.66	148.10	171.5

Source: Croatian economic trends (1992). No. 5 and 8.

A—total social product,
B—industrial production,
C—average wages,
D—total investment,
E—inflation,
F—employment in social sector,
G—private employment (without employees),
H—unemployment.

When speaking about macroeconomic situation and further development one should point out that Croatia is presently facing three enormous economic problems. They are: a) the war, b) independence of Croatia and disintegration of Yugoslavia, c) and transformation from socialist (self-managed but nonetheless socialist) system to a (supposedly) mixed market oriented one linked with the loss of ex-CMEA (Council of Mutual Economic Assistance) markets. Each of these problems taken separately is large enough to cause serious distortions in the economy. War damages (in March 1992) are estimated to be around 20 billion dollars (Privredni vjesnik, 1992). Costs of independence are estimated to be around 1/3 of GDP (or around 3 billion dollars for 1990) and (as experience from other formerly socialist CEE countries indicates) transformation has its own substantial price, at least in the short run (see Gelb and Gray, 1991).

How has business reacted to such economic and political developments? On one hand, within the new legislative framework, restrictions on private sector have been abolished. Private ownership, capitalism and entrepreneurship are key words in every politician's language. But, on the other hand economic situation has sharply deteriorated. Financing of the war has imposed new fiscal burdens on companies (see the next section) and high inflation (see Table 4) is acting as a strong deterrent against investment and long term development of business. Stable macro conditions (meaning low inflation) are probably better for investment than fiscal or tax incentives (Servan and Solimano, 1989).

Unfortunately there are not many data on business performance in Croatia. One of the indications is a number of companies. As can be seen from Table 5, a large number of new enterprises has been created during the last two years and their number has increased 2, 6 times.

Large number of private companies must not be interpreted as some kind of "Croatian miracle". Although it is true that private companies form 80% of their total number, most of small private companies were not operative.[5] It is very simple to register a new company. All that is needed is: an address, (virtually) half the person (the other half can still work in a socially owned enterprise) and a tax of less than 30 US $. Therefore a lot of companies were registered, but in1990 and 1991 a relatively small number (probably less than half) of them effectively operated.

An increase in the number of private companies, associated with low investment indicates that probably part of the capital is speculative and part is going to labor intensive industries like services (especially financial ones) and trade. Interestingly the ownership structure of companies has not changed in the period from December 1990 to March 1992. Intuitively one would expect a rise in the share of private companies. About 83% of companies are private and about 12% are socially owned. The rest is either cooperative or mixed ownership (see

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[5] unfortunately due to different legal framework it is not possible to compare those data with the number of companies before 1990. Private (registered) value added in 1989 was about 8%, and for 1990 data are still not available (Bicanic and Škreb, 1991b).

Monthly statistical bulletin, 1992). The number of socially owned firms has increased mostly through their decomposition and registration of its parts according to the new Croatian Company law. More often than not, a main company has retained decision power in smaller companies through share ownership.

TABLE 5

NUMBER OF COMPANIES IN THE CROATIAN ECONOMY

(end of month data)

	Dec 1990	Dec 1991	Mar 1992	Aug 1992	R**
Manufactur.	2 954	4 556	4 956	5 737	1.94
Agriculture	463	849	937	1 187	2.56
Forestry	10	21	23	33	3.3
Water res.	11	29	31	31	2.81
Civil eng.	1 179	2 076	2 366	2 877	2.44
Tran. & Com.	471	800	887	1 146	2.43
Trade	7 735	14 948	17 068	21 561	2.79
Catering	1 241	2 076	2 237	2 632	2.16
Handicraft	787	1 386	1 520	1 811	1.50
Housing and public util.	186	785	807	859	4.61
Finan. serv.	2 313	4 525	5 216	6 592	2.85
Total number of comp.	17 350	32 051	36 048	44 466	2.56

Source: Croatian economic trends (1992), No. 8.

R**—(Num. of companies in Aug 1992)/(Num. in Dec 1990).

We can see that the largest absolute number of companies has been created in trade (half of all companies) and in financial services. But, private sector still does not have great economic power. Those companies typically employ the owner and one employee. In about 40,000 private companies and 70,000 handicrafts in Croatia (in August 1992), there were about 95,000 employees (excluding the owners of those companies) or just 0, 9 employee per company and handicraft (computed from: Croatian economic trends, 1992).

New companies are mostly private and very small. Socially owned companies are usually large. Therefore, the problem is to transform the socially owned enterprises into welll defined ownership forms, namely private or state ownership. Privatization in Croatia has actually started with the transformation of ownership based on the Law on Transformation of Social Companies adopted in April 1991. The main point of the law is to transform social ownership of companies and to incorporate them into joint stock or limited liability companies either as private or public ownership. About 3600 companies had to undergo this process and submit elaborates on transformation of ownership to agencies which were formed to monitor this process: Agency for Reconstruction and Development and the

Croatian Development Fund. The Agency oversees privatization and approves any transformation plan that enterprises could initiate on their own and submit transformation plans till the end of June 1992. These programs usually provide important incentives for employees to invest in the new enterprises. Enterprises whose equity has been estimated at less than 5 millions DM have a simpler path to follow.

For enterprises that did not submit transformation plans till the deadline, the Agency becomes responsible for transformation and privatization. Croatian Development Fund becomes the owner of 2/3 of unsold shares (which were not privatized) and 1/3 goes to the Pension funds. Within this deadline 2 383 companies (or 65%) submitted all necessary documents to the Agency. The Agency has issued, up till now, only about 200 approvals (Privredni Vjesnik, 1992). Croatian Development Fund is trying to sell shares from its portfolio on public auctions at the stock exchange.

But, there are two main obstacles to privatization. One of them is that Law on Denationalization (compensation or restitution of nationalized property after the 2nd World war) has not been passed yet, thus adding uncertainty to an already shaky situation. High inflation and proximity of war have deterrred any substantial foreign investment in Croatia, thus no new capital has entered on a larger scale.

Up till now the speed of transformation and privatization has been modest. The war is partly to be blamed for this. If this process is not speeded up the state (through Croatian Development fund) will become the owner of the large part of Croatian economy enabling any real transformation to mixed economic system.

With the creation of new companies, bankruptcies have increased as well. In 1992 the number of monthly bankruptcies is between 350 and 430 (Croatian economic trends, 1992) of both private and socially owned firms.

3. Business Representation

Now we come to the question on how is business represented in Croatia during transformation process. In Croatia there are about 115000 business subjects: there are about 45000 companies and about 70,000 "sole proprietorship", mostly in handicraft. By company I mean an entity separate and distinct from its owners. The owners of the company are not personally liable for its debts, thus having limited liability. By individual businessmen I mean "sole proprietorship" indicating a business operated by a person as his or her own personal property. This type of enterprise is an extension of the individual ownership. The main problem is how to represent all those subjects?

Business associations in general have to define and articulate genuine business interests as a whole both toward the state and labor unions. Business associations have to homogenize differences on a number of public policy issues among business, for example, differences between small and large companies or between manufacturing and finance firms (Coleman and Grant, 1988). Due to those differences among various businesses, specialized interest organizations sometimes do appear. Even if the mentioned problems are successfully resolved, there remains the well known principal-agent problem with representation (Tirole, 1988).

How is business represented in Croatia? There is a Croatian Chamber of the Economy as a comprehensive and compulsory organization. There are also several voluntary associations which have emerged in the last two years. In the subsequent sections I will give a brief description of both of them.

3.1. Croatian Chamber of the Economy

Croatian Chamber of the Economy has a long tradition in Croatia. It has been founded after the 2nd World War and formerly it was called Chamber of the Economy of Croatia. After multiparty elections and Declaration of Independence of Croatia, it has been reorganized.[6]

The new CCE has been established by law and the new reforms were initiated by the state. It is (supposedly) an independent professional business association whose goal is to promote common interest of its members toward the state and other institutions in the country and abroad. Membership is compulsory, thus all companies and individual businessmen doing business in Croatia are automatically its members by registration. Companies like: firms, banks, and other financial institutions, insurance organizations, and workshops register their activity at court.

Individual businessmen have to register their activity at local municipal authorities. By registering they become members of regional associations of Individual businessmen. The Alliance of Association of Individual Businessmen (AAIB – to be discussed later) is a collective member of CCE. Thus, individual businessmen are indirectly members of CCE through membership in their associations and alliances.

According to the law and the statute, the principal aims of CCE are:

- to promote interests of its members by influencing state institutions concerning the economic system and economic policy,
- to formulate economic forecasts,
- to support the development of entrepreneurship,
- to help start new firms or transform old ones,
- to negotiate and sign collective agreements with trade unions,
- to issue various certificated (origin of merchandise),
- to give opinion on creditworthiness of its members and foreign partners.

CCE is organized in several departments . They are:

1. Department for Economic System, Economic policy and Development,
2. Department for International Economic Relations,
3. Department for Industry (manufacturing)
4. Department for Agriculture, Forestry and Water Resources,
5. Department for Services,

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[6] the new law on CCE has been drafted according to the Austrian law. Law of new Croatian Chamber of the Economy has been published in Official Gazette (Narodne Novine) No. 66 in 1991. Its Statutory has been published in NN 56/91.

6. Department for Handicraft,
7. Department for Informatization of CCE.

CCE has lately formed various Economic Councils for: Trade, Tourism, Transportation and Communications and Handicraft. They are informal bodies of 20–30 managers, owners, scientists, etc. Their decisions do not have executive power, but they are trying to influence through CCE economic policy decisions taken by the state. Although centrally organized, CCE has still retained regional chambers. At the time being there are 11 regional chambers of the economy in Croatia. CCE currently has 450 employees, 120 of them are located in headquarters in Zagreb. The total number of employees has decreased in the last two years by more than 200 (mostly through regular and early retirements).

Financing of CCE is established in a following way. All its members pay a contribution. For the first part of 1992 all companies are supposed to pay a fee of 0.4% of their gross wage bill. Sole proprietorships (individual businessmen) pay indirectly through their Associations. The alliance of associations of independent businessmen pay 10% of its total revenue to CCE. These fees are agreed upon on the yearly assembly (convention) of CCE where the financial plan for the next year is adopted. The rates of contributions must be made public.

International activity of CCE is becoming more and more important. Presently there are about 50 representatives of CCE in foreign countries. Their main goal is to promote interests of Croatian business abroad. As this activity is very expensive CCE is trying to name distinguished local businessmen (not necessarily of Croatian origin) as their representatives in various countries, and tries to minimize sending its representatives from Croatia. CCE is trying to promote foreign cooperation through joint (mixed) bilateral chambers of economy with various countries. Mixed chambers of economy have so far been established with: France, Germany, Austria, Israel, Italy and Australia. One of the main aims of CCE is to provide complete service for business starting with information about new businesses. CCE is also providing information for potential foreign investors in Croatia.

The main problems they are faced with are the incompleteness of the legal framework in Croatia, and the war whose results are falling production high inflation and high taxes. Rules and regulations are being changed too frequently.

In short, CCE should promote basic interests of business towards the state and trade unions as well. At the time of writing this paper one of the main activities of CCE was negotiating a new collective agreement on wages with three trade union associations in Croatia. CCE also tried to initiate various discussions about new laws (or changes of the existing ones). Part of their activity is devoted to issuing various certificates, for example certificates that goods were produced in Croatia. This certificate is necessary for export.

Independent businessmen (most of them artisans) are members of CCE through their Alliances. Alliance of associations of independent businessmen of Croatia (AAIB) is an independent organization of associations and alliances of Croatia artisans whose aim is to promote common interest of all independent businessmen who are registered in Croatia. It has been reorganized in March 1992 by a new Statute. According to the Statute, the artisans of Croatia are organized in their local and regional associations to promote their interests and to influence the whole economic development through CCE, where they have representatives.

Although data are not very reliable[7] in October 1992 there were about 70000 individual businessmen in Croatia. As mentioned, individual businessmen become members of AAIB (and CCE) through their municipal associations and regional alliances.

Financing of AAIB is done in three main ways, namely through:

1. contribution (fees) of members,
2. user charges for various services,
3. other revenues.

The main source of income are membership fees. All individual businessmen must pay 0, 3% on the same basis as their contribution for pension fund. The basis now is gross wage bill. This 0, 3% rate serves for AAIB and CCE activity at the same time. As has been said AAIB pays 10% to CCE. On top of this individual businessmen pay 0, 1% in a special solidarity fund for individual businessmen in need. In case their business is registered as an additional activity they have to pay 0. 3% on their flat tax (determined by municipalities). Beside Croatian alliance of associations there are several (usually regional) associations.)

In the old system independent businessmen were ideologically regarded as inadequate. The development of private sector in general has been curbed with a lot of restrictions. Now, at least theoretically there is no such political negative bias. But "fiscal terror" has become a great threat to small business instead. According to daily newpapers (no reliable source is available) more than 10000 handicrafts have closed their businesses in the last couple of months. There are two main reasons for this sharp decline of activity. The first one is general economic situation, namely: very high inflation combined with weak financial discipline and the decline of production due to decreased demand (see Tables 3 and 4). The second one are high and changing have tax rates which have run them out of business. For example, total taxes on a net wage given to an employee at the individual businessmen were as high as 145% in May (including health and pension fund and various taxes). Now this rate is 129%. These high taxes are very prohibitive for new employment and tend to increase unemployment. Out of total number of 89 309 employees in the private sector in May 1992 (without the owners of companies and individual businessmen) 50 119 were employed with individual businessmen. Compared to May 1991 this is a decline of 10 779 workers (Monthly Statistical Bulletin, 1992). As a reaction to this owners are either not registering their work force or are paying them the minimum wage, which is exempted of some taxes, and the rest of their wages are paid from other

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[7] They have to register at the municipal authorities. There are 102 local communities in Croatia. But, they do not have to submit data on individual businesses to any republican authority. AAIB does not have very accurate statistics.

(unregistered) sources. In both ways high taxes are stimulating fraud and fiscal evasion is estimated to be very high.

3.2 *Voluntary business associations*

There is a relatively large number of various (voluntary) associations of business in Croatia. I have mostly restricted description to the Zagreb region, so this survey is not exhaustive. A lot of associations are emerging, some of them are registered, but are not operating, thus it is difficult to have a complete picture. I will give a brief description of some of them to better understand problems of representation of business interests.

Club of Managers-Zagreb has been founded in November 1990. It was founded as an "association of citizens", and it is defined as a voluntary, independent organization whose aim is to promote better management and solve common problems of managers. Any person engaged in managerial activity in the company can become its member (of course if he/she wishes to do so). According to their statute, the main goals of this club are:

- organization of various professional seminars, lectures, workshops, contacts with professionals on specific topics,
- publication of occasional newsletter with relevant information,
- organization of an internal market for managers and other professionals (formation of a data base on managers)
- coordination and connections with similar organizations and
- miscellaneous recreational activities for its members.

For 1991 a yearly membership fee was 2000 Croatian dinars (which by the end of the year was about $ 25). The Club has about 50 members. Due to open aggression on Zagreb in October 1991, they have de facto suspended their activity.

The Club does not have professional workers, but everything is done on a voluntary basis. They tend to give information to their members free of charge (in the beginning). They do not have any special relations with the state or CCE, nor have they established any contacts with similar organisations in the world. It is a very bad moment for such activities, because most of the managers are preoccupied with the vital problems in their enterprises like: downfall of production, transformation of ownership, insolvency problems, war agression etc, and are not thinking about the dignity of their profession or better managerial skills.

In November 1990 another association of managers has been found. It is called Croatian Manager's Association (CROMA). It was formed under the auspices of CCE and they have the same address as CCE. CROMA is a voluntary, independent nonprofit association of managers. Their principal goals are:

- to promote management as an independent profession
- to establish an entrepreneurial spirit where knowledge, techniques and skills of entrepreneurs and managers will be appreciated.

From their declaration, it is clear that these goals cannot be achieved till the process of transformation of ownership is completed. Unless there is a well known owner of the company the relationship between managers and owners cannot be defined.

In August 1992 The Entrepreneur's Club of Zagreb bank has been established. It has been initiated by the Bank. The main aim of this Club is to have better contacts between the bank and its leading private businessmen (of course those who have an account in the bank). Due to frequent changes of banking rules and regulations, the bank wants to keep them well informed about all the changes (concerning their businesses) and want to hear their complaints. In short the bank want to have a place where notable businessmen can have all information about their businesses. The bank wants to give them financial and business consulting as well. The bank is compiling a list of eminent scholars and professionals which will be at the disposal of those businessmen for consultancy.

Members of the club can be only the most distinguished businessmen (either owners of companies or individual businessmen) who have an account at the bank for 2–3 years and are paying regularly their obligations toward the bank. Members are not supposed to pay any membership fee and the bank is paying for the activity of the Club.

The bank has no possibilities to offer favorable credits to the members of the Club or other forms of financial support (consulting apart). Members of the Club have to take the same commercial credits as others.

How efficient are Croatian Chamber of the Economy and voluntary business associations in representing business interests? Without more reliable sources I have undergone a small (nonrepresentative) survey on the efficiency of CCE in the business community. Based on the opinion of businessmen (managers in companies and artisans), CCE has not imposed itself as an important subject in business in Croatia. Businessmen either ignore its activities, or do not need CCE in their business operations in spite of the fees paid. Rational ignorance seems like a good description of their behavior.

Businessmen indicated that for professional contacts they rely mostly on their previous informal connections and that they need not CCE to introduce them to other businessmen. When doing business abroad larger enterprises try to obtain information directly from Chambers of the Economy (or commerce) in the country of interest, and not through CCE.

Part of the managers would prefer to have voluntary interest associations where they could express their views and discuss them openly with the state and not through CCE. But, we have already seen that those voluntary associations are either small (and thus have no real bargaining power in negotiations with the state) or (like CROMA) formed under the auspices of CCE. Some managers think that there is a need to form specialized (and not comprehensive) business associations of owners in various industry branches which can directly deal with the state and ministries. But, for this we need a process of transformation of ownership completed and larger parts of the economy in private hands.

Most of managers think that time has not arrived yet to talk about real business representation. All economic problems are so deep that business community is trying to survive almost on a daily basis and is not thinking about long-term strategy and business representation.

Having in mind such a difficult situation what can be done? If, for the moment, we try to put political problems aside, some points must be made. First, we should bear in mind that small and large business have different interests and probably should be organizationally completely independent. Business associations are especially important for small business for at least two reasons. Each of small businessmen taken separately has very little (if any) bargaining power with the state and there are economies of scale in the transaction costs (Nooteboom, 1992).

Second, in Croatia there are conflicting interests between private (mostly small) and socially (mostly large) companies. Large companies are still allowed (sometimes) to operate under soft-budget constraints (mainly to avoid large layoffs). This problem cannot be resolved until the process of ownership transformation is completed.

Third, compulsory associations, if not really independent from the state, can cause net costs on companies. Companies pay a fee, but if associations do not represent business community (but are elected and influenced through political process) in conflicting interests between the state and business (like in Croatia today where the main interest of the state is to fill the budgeted deficit) those associations can defend primarily state interests.

Fourth, some institutional solutions must be found such that business interests are heard in the process of decision-making both in the Parliament and in the government. Without those solutions, there will be no economic growth, and without economic growth transformation cannot be done.

4. Conclusion and Discussion

(i) by the end of 1980-tees tremendous political changes have happened in Central and Eastern Europe (CEE). Those changes resulted in the collapse of the old political regimes and their consequent economic structures. This has been preceded by a long-lasting economic crisis in those countries. Most of CEE economies have undertaken a lengthy process of transformation. Transformation means general economic reform of all segments of economic system. Although macro aspects of transformation are very important, micro adjustment of enterprises has been neglected so far and more attention must be given to business.

Under the old economic system (due to command economy, state ownership, restrictions of private sector, and strong political influence on companies), there was no need to represent business towards the state. But, with the collapse of the old economic structure the situation has dramatically changed. Old companies are being privatized and disintegrated into smaller (presumably) more viable ones and new private firms are being created daily.

If old links do not exist any more, there is a valid need for adequate business interest representation within the decision making process (either on strategic or daily matters). But, (seemingly) business is still not well represented in social partnership between: the state, trade unions and business in transforming economies. Transformation, which will last longer and cost more than previously expected, must also resolve the problem of business representation.

(ii) due to war, formation of the new state and transition from socialist to a mixed economic system, Croatia is facing a deep economic crisis. Falling production, very high inflation and rising unemployment are only the main indicators. Ownership transformation is far from completed and large parts of the economy (measured by the value added) are still socially owned. This is a very unfavorable environment for investment. Stable macro conditions are probably better for investment than tax incentives. Legal framework is not completed yet (transformation of ownership and the question of denationalization) and various other regulation in Croatia are still changed very often, making long term investments a very risky business.

(iii) Croatian Chamber of the economy is a compulsory business association of all companies in Croatia. Presently there are about 44000 companies. CCE wants to be an independent association and represent business community toward the state and trade unions alike. Individual businessmen are members of CCE through their associations and alliances. There are about 70000 individual businessmen today in Croatia. Some voluntary associations have lately been formed in Croatia. Most of them intend to assemble managers and entrepreneurs, but they are still small and do not exercise any substantial power. Business community is not satisfied with either CCE or voluntary organizations.

(iv) When thinking about business representation in transforming economies we should bear in mind some important points. First, small and large business have different interests and probably should be organizationally completely separated. Business associations are especially important for small business.

Second, in transformation there are conflicting interests between private (mostly small) and state-social (mostly large) companies. Large companies are still allowed (sometimes) to operate under soft-budget constraints (mainly to avoid large layoffs). This problem cannot be resolved until the process of ownership transformation is completed.

Third, compulsory organization, if not really independent from the state, can cause net costs on companies. If they do not represent business community, but are elected through political process, the results for business can be disastrous.

Fourth, some institutional solutions must be found such that business interests are heard in the process of decision-making both in the Parliament and in the government. Without these solutions, there will be no economic growth, and without economic growth transformation cannot be done.

But, in the tumultuous process of transformation (where speculative capital often plays an important role) one should not expect genuine business representation to develop soon. Maybe the best advice that an economist can give would be to the state (and not to business) to realize that without viable business their jobs and rents will disappear quite soon.

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STRUCTURAL CHANGES AND GROWTH IN INDIA: AN INPUT–OUTPUT APPROACH

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The importance of structural change in economic development has been recognised for some time. A number of studies in the development literature have accepted the strong general relationship between structural change and economic growth [Kuznets (1968), Chenery (1979), Yotopoulos and Nugent (1976)]. The shift of employment and production from agriculture to other industries as development proceeds has been found to be a universal phenomenon. Gemmell (1982) has studied the connections between development and the growth of the service sector which is another structural phenomenon of universal occurrence. There has also been a lot of research based on Input-Output (I-O) analysis which examines structural change in the economy but at a very aggregated industrial level. These studies compare structure and development between different countries [e.g. Yotopoulos and Nugent (1973)] or between different years in the same country [e.g. Tilanus (1966)]. Some work on structure-development relationships has been done at the regional level also [e.g., Baum, Munro and Schachter (1990)].

In this paper an attempt has been made to study the structure-growth relationships of the Indian economy in the Input-Output framework. This paper has been divided into five sections. The methodology used for the analysis is described in section 1.1. Section 1.2 describes the structural changes in the Indian economy with the help of backward and forward linkages using the Input-Output (I-O) tables of India while the details of economic growth in the Indian economy over the period under study are chalked out in section 1.3. Section 1.4 explains the results of the structure-growth relationship analysis conducted while an overall summary is presented in seection 1.5.

1.1 Methodology

The aim is to study the relationship between structural change and economic growth of the Indian economy at the national level using data for the period 1968–69 to 1983–84. The I–O technique has been used alongwith the regression technique for this objective. I-O coefficients identify an economy's industrial structure in detail and also the linkages between different industrial sectors.

Changes in coefficients have been taken to represent changes in industrial structure and this provides the basis for the analysis of the relationship between structural change and economic growth. We use linkage measures as measures of structural change while we define economic growth as the real Gross National Product (GNP) of the country. The growth measures have been regressed on the linkage measures to find the relationship between growth and structural change in the Indian economy at the national level.

1.1.1 Measuring Structural Change

Since the linkage concept is based on industrial interdependence the best way to calculate sectoral linkages is with the help of I-O tables. The measurement of linkages in an I-A framework have been made based on the Leontief technology matrix (the matrix A) or the Leontief inverse [the matrix $(I\text{-}O)^{-1}$]. In this context three different approaches can be distinguished-the Chenery-Watanabe (1958) approach, the Yotopoulos-Nugent (1973) approach and Rasmussen's (1956) approach. Of these, Rasmussen's approach is widely used as it has proved to be superior to the other two approaches on several counts.

One point to be noted is that Rasmussen's linkage indices are based on the traditional demand driven Leontief model for calculating both backward and forward linkages. Though the Leontief model explains and measures backward linkages to quite a great extent, it is grossly inadequate for measuring forward linkages (Jones, 1976). In view of the drawback of the Leontief model, recent approaches for measuring forward linkages are based on the output approach (or the supply driven I-O model). Originally developed by Angostinovics (1970)[1] , as a method of structural analysis symmetrical to the traditional input approach, the supply driven I-O model has been proposed for linkage evaluation by Jones (1976) and more recently by Bulmer-Thomas (1982) to overcome the conceptual drawbacks of the Rasmussen technique. Though there are theoretical reservations against this model [Giarratani (1980), Oosterhaven (1981)] it is argued that the supply side model can be safely used to indicate the strength of forward linkages (Oosterhaven, 1988). In India there are very few studies [e.g. Venkatramaiah et al. (1984), Saxena and Rath (1991)] which have used the output approach for calculating forward linkages to date and inspite of its limitations the Leontief input approach (or demand driven model) continues to be used for this purpose.

For the purpose of the present paper backward and forward linkages have been estimated using the I-O tables for the years 1968–69 (CSO, 1978), 1973–74 (CSO, 1981), 1978–79 (CSO, 1989) and 1983–84 (CSO, 1990). Backward linkages have been measured using the simple column multiplier BL (for overall backward linkage of the economy) and Rasmussen's indexes U_j and V_j applied to the traditional Leontief inverse while the forward linkages have been measured using the simple row multiplier FL (for overall forward linkage of the economy) and Rasmussen's indexes U_i and V_i (for sectoral forward linkages) applied to the output or supply side inverse. The backward linkage measures. (i.e. BL, U_j and

V_j) and the forward linkage measures (i.e., FL, U_i and V_i) as used are briefly explained in an appendix to this paper.

In section 1.2 we describe the results of the indices U_j, V_j , U_i and V_i for 46 sectors of the Indian economy for all three years under reference. The original 60 sector tables of CSO were first aggregated to a standardised 46 sector classification and deflated to constant 1983-84 prices before being used for the present analysis. Indices U_j and U_i show the strength of linkages while indices V_j and V_i show the diversity of linkages. Section 1.2 also describes the results of the overall indices BL and FL for the Indian economy for the four years 1968-69, 1973-74, 1978-79 and 1983-84.

1.1.2 Measuring Economic Growth

For the purpose of the present analysis we take real Gross National Product (GNP) as the measure of economic growth. In this case also we computed GNP by sectors as well as the overall GNP of the Indian economy for the four reference years. To compute the same we again took data from the I-O tables for the years 1968-69, 1973-74, 1978-79 and 1983-84. The overall GNP was computed by taking the sum of gross value added (GVA) at constant 1983-84 prices of all sectors of a particular year. In section 1.3 we explain the results of GNP by sectors as well as overall GNP for the Indian economy for all the years under reference. In the next subsection we specify the regression model that has been used to study the relationship between structural change and economic growth.

1.1.3 Linkage measures And Economic Growth

We are interested in studying whether higher linkages are associated with economic growth over time or not. More concisely we wish to find out whether the variety of backward and forward linkages are associated with economic growth of the country. That is, the objective of this subsection is to present a model to analyse the effect of structural change in India on the economic growth of the country over time. In order to study this relationship overall real gross national product (GNP) is regressed on overall backward linkage index (BL) and on the overall forward linkage index (FL) separately. To study the structure-growth relationship a linear specification of the regression models is proposed. The models are as follows:

$$GNP_t = a + b\,(BL_t) + u \tag{1}$$

$$GNP_t = c + d\,(BL_t) + v \tag{2}$$

where GNP_t is the overall gross national product of the Indian economy in period t, BL_t is the overall backward linkage of the Indian economy in period t and FL_t is the overall forward linkage measure of the Indian economy also in period t. u and v represent the random disturbance terms.

The estimation of the above regression models (i.e. equations 1 and 2) has been done by using the OLS method.

1.2 Linkage Measures for India

We calculated the six linkage measures (i.e. U_j, U_i, V_j, V_i, BL and FL) for India for the four years —1968-69, 1973-74, 1978-79 and 1983-84, for which CSO's I-O tables are available. Indices U_j, U_i, V_j, and V_i, have been calculated for each of the 46 sectors in the I-O tables. Indices BL and FL have been calculated as measures of backward and forward linkages for the overall Indian economy for each of the four years under study. Tables 1 and 2 give the backward linkages and forward linkages respectively.

From Table 1 it can be observed that sectors with high values of backward linkage index U_j (top ten) for the year 1968-69 are in order of ranking: Electric, Electronic Machinery (sector 37)*, Pesticides, Drugs, other Chemicals (28), wool, silk, synthetic Textiles (17), Fertilisers (26), Food products excluding Sugar (13), Other Machinery (36), Rubber and Plastic Products (22), Cotton Textiles (16), Beverages (14) and Transport Equipment and Miscellaneous Manufacturing (38).

For the year 1973-74 the top ten sectors on the basis of ranking of index U_j are: Electric, Electronic Machinery (37), Wool, Silk, Synthetic Fibre Textiles (17), Sugar (12), Food Products excluding Sugar (13), Agricultural Machinery (34), Other basic Metal Industry (32), Other Machinery (36), Leather and Leather Products (21), Transport Equipment and Miscellaneous manufacturing (38) and Pesticides, Drugs, Other Chemicals (28).

For the year 1978-79 these sectors in order of ranking are: Agricultural Machinery (34), Electric, Electronic Machinery (37), Cotton Textiles (16), Fertilisers (26), Wool, Silk, Syntheitc Fibre Textiles (17), Pesticides, Drugs, Other Chemicals (28), Food Products excluding Sugar (13), Other Machinery (36), Transport Equipment and Miscellaneous Manufacturing (38) and Leather and Leather Products (21).

For the year 1983-84 the top ten sectors on the basis of ranking of u_j are: Coal Tar Products (24), Iron and Steel (31), Agriculture Machinery (34), Food Products excluding Sugar (13), Fertilisers (26), Other Basic Metal Industry (35), Basic Heavy Chemicals (25), Pesticides, Drugs, Other Chemicals (28) and Wool, Silk, Syntheitc Fibre Textiles (17).

Thus, over the period 1968-69 to 1983-84 we see that there have been some changes in the sectors with high values (top ten) of backward linkage index U_j. Coal Tar Products (24), Iron and Steel (31), Food and Textile Machinery (35) and Basic Heavy Chemicals (25) have emerged as key sectors (from the point of view of backward linkage only) in 1983-84 as compared to earlier years. On the other hand, sectors like Beverages (14), Rubber & Plastic Products (22) and Sugar (12) do not feature in the top ten sectors in 1983-84 as compared to 1968-69 and 1973-74.

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*Figures in parentheses show sector numbers.

TABLE 1
DEMAND SIDE MULTIPLIERS FOR 1968–69, 1973–74, 1978–79 AND 1983–84

Sector No.*	Rasmussen's Backward Linkage Index U_j				Rasmussen's Backward Linkage Variation Index V_j			
	1968–69	1973–74	1978–79	1983–84	1968–69	1973–74	1978–79	1983–84
1.	0.7849 (33)**	0.7535 (34)	0.8237 (32)	0.8106 (34)	5.4243 (9)	5.4431 (8)	4.8594 (13)	4.7607 (12)
2.	0.7015 (39)	0.7268 (37)	0.7215 (36)	0.7362 (36)	5.7120 (8)	5.4096 (9)	5.1526 (9)	4.9911 (10)
3.	0.5916 (43)	0.6164 (43)	0.6350 (43)	0.6521 (43)	6.3565 (4)	6.0549 (4)	5.6210 (5)	5.3536 (5)
4.	0.6358 (42)	0.6788 (40)	0.6778 (40)	0.7009 (38)	6.1025 (6)	5.7342 (6)	5.3612 (6)	5.1710 (8)
5.	0.9568 (30)	1.0464 (25)	0.8990 (31)	0.9100 (32)	4.3011 (18)	3.9111 (24)	4.2367 (18)	4.1479 (16)
6.	0.5725 (46)	0.5711 (46)	0.5762 (46)	0.5995 (45)	6.5806 (1)	6.5452 (1)	6.1475 (1)	5.8219 (2)
7.	0.5871 (44)	0.6040 (44)	0.5863 (45)	0.5856 (46)	6.4066 (3)	6.1794 (3)	6.0364 (3)	5.9459 (1)
8.	0.6467 (41)	0.6671 (41)	0.7231 (35)	0.8066 (35)	5.9719 (7)	5.6305 (7)	4.9858 (12)	4.3967 (14)
9.	0.5841 (45)	0.5946 (45)	0.6002 (44)	0.6123 (44)	6.4425 (2)	6.3165 (2)	5.9433 (4)	5.7435 (3)
10.	0.7389 (37)	0.7200 (38)	0.7072 (37)	0.6707 (41)	5.0710 (11)	5.1732 (11)	4.9997 (11)	5.1886 (7)
11.	0.7576 (35)	0.7448 (36)	0.6663 (41)	0.6930 (39)	4.9516 (14)	5.0078 (14)	5.3040 (7)	5.0199 (9)
12.	1.0610 (22)	1.2959 (3)	1.0473 (26)	1.1306 (16)	4.1016 (22)	3.5000 (37)	3.7004 (27)	3.5340 (32)
13.	1.2597 (5)	1.2839 (4)	1.2371 (7)	1.2705 (4)	3.5080 (37)	3.3622 (40)	3.2606 (40)	3.1615 (44)
14.	1.2254 (9)	1.2036 (11)	1.1842 (14)	1.1019 (19)	3.1197 (42)	3.1378 (43)	3.0536 (44)	3.2140 (41)
15.	1.0059 (25)	0.9676 (30)	1.1111 (19)	0.9825 (29)	3.9077 (27)	4.2716 (19)	3.4242 (32)	3.9242 (21)
16.	1.2327 (8)	1.1390 (17)	1.3046 (3)	1.0948 (24)	3.8680 (28)	3.7686 (28)	3.4959 (29)	3.8825 (23)
17.	1.4052 (3)	1.3612 (2)	1.2654 (5)	1.1717 (10)	2.8286 (46)	3.0390 (45)	3.0730 (43)	3.7255 (27)
18.	1.1180 (17)	1.1444 (16)	1.0557 (23)	0.9754 (31)	3.8087 (30)	3.5313 (34)	3.5377 (28)	3.9634 (20)
19.	0.9593 (29)	0.8768 (31)	0.9596 (30)	0.9786 (30)	4.2169 (19)	4.6994 (15)	4.2406 (17)	4.1111 (17)
20.	1.1810 (12)	1.1065 (19)	1.1250 (18)	1.1671 (13)	4.0837 (23)	4.2954 (18)	4.0574 (20)	4.0996 (19)

Sector No.*	Rasmussen's Backward Linkage Index U_j				Rasmussen's Backward Linkage Variation Index V_j			
	1968–69	1973–74	1978–79	1983–84	1968–69	1973–74	1978–79	1983–84
21.	1.1191 (16)	1.2411 (8)	1.2249 (10)	1.1344 (15)	3.9287 (25)	3.7946 (26)	3.4473 (30)	3.8142 (25)
22.	1.2429 (7)	1.0934 (21)	1.1546 (16)	1.1030 (17)	3.7694 (33)	3.9441 (22)	3.4338 (31)	3.5715 (30)
23.	1.0044 (26)	1.1047 (20)	1.1053 (20)	1.0963 (23)	4.5335 (16)	4.3561 (17)	4.1351 (19)	4.1058 (18)
24.	1.0820 (19)	1.0840 (23)	1.1359 (17)	1.3528 (1)	3.8621 (29)	3.7315 (29)	3.4136 (35)	2.9405 (46)
25.	1.0385 (24)	1.0395 (26)	1.0852 (21)	1.2050 (8)	3.9108 (26)	3.9986 (21)	3.8594 (23)	3.5105 (33)
26.	1.3500 (4)	1.1875 (12)	1.2900 (4)	1.2571 (5)	3.0639 (44)	3.3214 (42)	3.0240 (45)	3.1413 (45)
27.	1.1754 (14)	1.1675 (15)	1.2036 (12)	1.1605 (14)	3.5150 (36)	3.5535 (33)	3.1346 (42)	3.2139 (42)
28.	1.4479 (2)	1.2166 (10)	1.2563 (6)	1.1733 (9)	3.0652 (43)	3.5313 (35)	3.3288 (37)	3.5623 (31)
29.	1.0038 (27)	1.0040 (28)	1.0498 (24)	1.1001 (21)	3.7959 (31)	3.7256 (30)	3.4159 (34)	3.2040 (43)
30.	0.9861 (28)	0.8237 (32)	0.7965 (34)	1.0182 (27)	4.0482 (24)	0.4665 (46)	4.6355 (15)	3.6653 (28)
31.	1.0633 (21)	1.1389 (18)	1.1785 (15)	1.3048 (2)	4.2109 (20)	4.0309 (20)	3.9992 (21)	3.8318 (24)
32.	1.1357 (15)	1.2631 (6)	1.2008 (13)	1.2538 (6)	4.4700 (17)	3.9031 (25)	3.7580 (25)	3.3225 (39)
33.	1.1765 (13)	1.1841 (14)	1.2172 (11)	1.1685 (12)	3.4437 (39)	3.6920 (31)	3.2735 (38)	3.3520 (38)
34.	1.1971 (11)	1.2647 (5)	1.4378 (1)	1.3026 (3)	3.4897 (38)	3.5572 (32)	3.1390 (41)	3.3956 (37)
35.	0.8953 (32)	1.1844 (13)	0.9879 (28)	1.2387 (7)	4.2036 (21)	3.5195 (36)	3.8688 (22)	3.4039 (36)
36.	1.2532 (6)	1.2509 (7)	1.2368 (8)	1.1689 (11)	3.4157 (40)	3.4332 (39)	3.4219 (33)	3.4465 (35)
37.	1.5262 (1)	1.3648 (1)	1.3169 (2)	1.1003 (20)	2.9678 (45)	3.1052 (44)	3.0105 (46)	3.6457 (29)
38.	1.2100 (10)	1.2388 (9)	1.2324 (9)	1.0725 (25)	3.3957 (41)	3.3488 (41)	3.2706 (39)	3.7269 (26)
39.	1.1006 (18)	1.0853 (22)	1.0711 (22)	1.0987 (22)	3.5424 (35)	3.4871 (38)	3.3733 (36)	3.2295 (40)
40.	0.9504(31)	1.0099 (27)	1.0484 (25)	1.1029 (18)	4.9730 (13)	4.6965 (16)	4.5463 (16)	4.3185 (15)
41.	1.0388 (23)	0.9952 (29)	0.9822 (29)	1.0479 (26)	3.7010 (32)	3.9199 (23)	3.7267 (26)	3.4523 (34)
42.	1.0684 (20)	1.0622 (24)	1.0353 (27)	0.9941 (28)	3.6016 (34)	3.7881 (27)	3.7986 (24)	3.8890 (22)

Sector No.*	Rasmussen's Backward Linkage Index U_j				Rasmussen's Backward Linkage Variation Index V_j			
	1968–69	1973–74	1978–79	1983–84	1968–69	1973–74	1978–79	1983–84
43.	0.7469 (36)	0.7186 (39)	0.6800 (39)	0.6633 (42)	5.0195 (12)	5.1813 (10)	5.1955 (8)	5.2425 (6)
44.	0.7291 (38)	0.7679 (33)	0.8111 (33)	0.8268 (33)	5.2449 (18)	5.0792 (12)	4.6680 (14)	4.4549 (13)
45.	0.6697 (40)	0.6587 (42)	0.6508 (42)	0.6722 (40)	6.1175 (5)	5.9673 (5)	6.1111 (2)	5.6174 (4)
46.	0.7832 (34)	0.7474 (35)	0.7050 (38)	0.7331 (37)	4.8627 (15)	5.0355 (13)	5.0583 (10)	4.8314 (11)
Index BL	1.801796	1.814429	1.912606	1.943702	Total Indian Economy Backward Linkage Index BL			

*For Sector specifications see Appendix—I

**Figure in parentheses show ranking. Thus rank (1) indicates the sector with the highest value of index U_i or V_j

Source: Computed From the 1968-69, 1973-74, 1978-79 and 1983-84 I-O Tables of order (46 × 46) at 1983-84 prices.

TABLE 2
SUPPLY SIDE MULTIPLIERS FOR 1968-69, 1973–74, 1978–79 AND 1983–84

Sector No.*	Modified Rasmussen's Forward Linkage Index U_i				Rasmussen's Forward Linkage Variation Index V_i			
	1968–69	1973–74	1978–79	1983–84	1968–69	1973–74	1978–79	1983–84
1.	0.5670 (40)**	0.5239 (41)	0.5477 (41)	0.5743 (42)	6.3484 (7)	6.2212 (3)	6.0928 (5)	5.9706 (5)
2.	0.8391 (22)	0.8656 (23)	0.9033 (22)	0.950 (20)	4.1593 (22)	3.7779 (26)	3.6349 (24)	3.5983 (30)
3.	0.7841 (27)	0.6813 (30)	0.7681 (28)	0.7984 (29)	4.2931 (21)	4.5051 (17)	4.1367 (19)	4.1701 (20)
4.	0.7435 (29)	0.7251 (26)	0.7095 (30)	0.7884 (31)	4.5848 (18)	4.3675 (19)	4.4049 (18)	4.2854 (19)
5.	0.6770 (34)	0.7133 (27)	0.6579 (33)	0.6694 (36)	4.8348 (16)	4.3353 (20)	4.6253 (15)	4.7766 (15)
6.	1.0206 (20)	0.9777 (14)	0.9153 (20)	0.8605 (24)	3.5446 (32)	3.3977 (33)	3.3918 (30)	3.7776 (27)
7.	0.4981 (43)	0.7131 (28)	0.5826 (39)	0.5597 (44)	6.3746 (6)	4.3162 (21)	6.0950 (11)	5.3353 (7)
8.	1.5390 (5)	1.2693 (6)	1.5173 (5)	1.6674 (5)	2.2160 (45)	2.4534 (43)	2.1805 (45)	2.1491 (45)
9.	4.1012 (1)	5.9196 (1)	5.1597 (1)	2.7131 (1)	2.6929 (41)	2.6505 (42)	2.2219 (43)	2.4488 (42)
10.	1.0874 (14)	0.9683 (16)	0.8816 (24)	0.9136 (21)	3.4477 (34)	3.3891 (34)	3.6175 (25)	3.6469 (28)
11.	1.6458 (4)	2.0312 (3)	1.6383 (3)	1.7312 (4)	2.5369 (42)	2.1531 (45)	2.2033 (44)	2.2674 (43)
12.	0.5761 (38)	0.5014 (43)	0.6033 (37)	0.5816 (41)	5.6671 (9)	5.9772 (6)	5.0269 (12)	5.4012 (10)
13.	0.7031 (33)	0.6158 (37)	0.5905 (38)	0.6154 (38)	5.2394 (13)	5.3734 (10)	5.5890 (8)	5.6366 (6)
14.	0.4906 (44)	0.4918 (45)	0.4923 (45)	0.4993 (46)	6.4909 (5)	6.1117 (4)	6.1119 (3)	6.3270 (3)
15.	0.4687 (46)	0.4775 (46)	0.4483 (46)	0.5082 (45)	6.7822 (1)	6.7795 (1)	6.7711 (1)	6.6893 (1)
16.	0.6757 (35)	0.6182 (36)	0.6424 (34)	0.6873 (35)	5.9692 (8)	5.2921 (11)	5.7758 (6)	5.4503 (9)
17.	0.6303 (36)	0.5763 (39)	0.5158 (44)	0.6382 (37)	5.3992 (12)	5.6593 (8)	6.1022 (4)	6.0783 (4)
18.	0.7239 (32)	0.6485 (35)	0.6257 (35)	0.6881 (34)	4.9362 (15)	4.8875 (14)	4.8967 (13)	4.9590 (12)
19.	1.0836 (15)	0.9404 (20)	1.0123 (17)	1.0664 (16)	3.7171 (31)	3.5044 (31)	3.4553 (27)	3.5187 (31)
20.	1.2197 (9)	1.1096 (10)	1.0785 (12)	1.1802 (11)	3.4771 (33)	3.6067 (29)	3.5774 (26)	3.6451 (29)

Sector No.*	Modified Rasmussen's Forward Linkage Index U_i				Rasmussen's Forward Linkage Variation Index V_i			
	1968-69	1973-74	1978-79	1983-84	1968-69	1973-74	1978-79	1983-84
21.	0.5544 (41)	0.5585 (40)	0.5237 (43)	0.5916 (39)	6.6356 (3)	6.6205 (2)	6.5852 (2)	6.4823 (2)
22.	1.0635 (16)	0.9568 (17)	1.0367 (14)	0.8599 (25)	3.9588 (27)	3.7293 (27)	3.3073 (33)	4.0559 (21)
23.	1.1576 (12)	1.0514 (12)	1.2461 (10)	1.2619 (10)	2.9927 (39)	2.9541 (41)	2.6205 (41)	2.7880 (41)
24.	1.3718 (7)	1.2212 (8)	1.3570 (7)	1.4073 (8)	2.3947 (43)	2.9819 (40)	2.9000 (40)	2.8685 (40)
25.	1.8842 (3)	1.7243 (4)	1.7255 (2)	1.8954 (2)	1.9956 (56)	2.1230 (46)	2.1493 (46)	2.1244 (46)
26.	1.3753 (6)	1.3259 (5)	1.4159 (6)	1.4105 (7)	3.3660 (36)	3.1156 (38)	3.1707 (36)	3.1210 (35)
27.	1.1768 (11)	1.0587 (11)	1.0705 (13)	1.1289 (13)	2.9432 (40)	3.1598 (37)	3.1259 (37)	3.1668 (34)
28.	1.0900 (13)	0.9731 (15)	1.0840 (11)	1.0004 (18)	3.7833 (30)	3.6600 (28)	3.2865 (34)	3.7815 (26)
29.	1.0619 (17)	0.9379 (21)	1.0199 (15)	1.0711 (15)	4.0512 (24)	4.2534 (22)	4.0584 (20)	3.8988 (23)
30.	1.0283 (18)	0.9496 (18)	0.9053 (21)	0.9819 (19)	4.1009 (23)	4.0353 (25)	4.0174 (21)	3.8180 (24)
31.	1.1819 (10)	1.2566 (7)	1.2796 (8)	1.4645 (6)	3.4458 (35)	3.1018 (39)	3.1957 (35)	3.2025 (33)
32.	2.1525 (2)	2.1623 (2)	1.6066 (4)	1.8135 (3)	2.3691 (44)	2.1751(44)	2.5341 (42)	2.2474 (44)
33.	0.8353 (23)	1.0043 (13)	1.0133 (16)	1.1133 (14)	3.8934 (28)	3.4651 (32)	3.0842 (39)	3.0085 (38)
34.	0.5169 (42)	0.6089 (38)	0.6187 (36)	0.8353 (26)	6.5932 (4)	5.6049 (9)	5.4911 (9)	4.6182 (16)
35.	0.4727 (45)	0.6738 (32)	0.6795 (31)	0.7353 (33)	6.7257 (2)	4.7863 (15)	4.6065 (17)	4.9404 (13)
36.	0.7339 (31)	0.7094 (29)	0.9638 (19)	0.7905 (30)	4.9990 (14)	4.5747 (16)	3.4529 (28)	4.3418 (17)
37.	0.7542 (28)	0.6640 (33)	0.6715 (32)	0.7416 (32)	4.8209 (17)	4.9528 (12)	4.8174 (14)	4.7958 (14)
38.	0.8108 (24)	0.6603 (34)	0.7152 (29)	0.8192 (28)	4.3959 (19)	4.8970 (13)	4.6149 (16)	4.3155 (18)
39.	1.5856 (37)	0.5107 (42)	0.5298 (42)	0.5711 (43)	5.4905 (11)	5.8314 (7)	5.6047 (7)	5.4610 (8)
40.	0.3020 (8)	1.1437 (9)	1.2670 (9)	1.3728 (9)	3.0138 (38)	3.2636 (36)	3.1207 (38)	3.0572 (37)
41.	0.8641 (21)	0.8688 (22)	0.9001 (23)	1.0395 (17)	3.8053 (29)	3.5622 (30)	3.3711 (31)	3.0734 (36)
42.	0.7375 (30)	0.7493 (24)	0.8737 (25)	0.9045 (22)	4.3829 (20)	4.2525 (23)	3.8664 (23)	3.8096 (25)

Sector No.*	Modified Rasmussen's Forward Linkage Index U_i				Rasmussen's Forward Linkage Variation Index V_i			
	1968–69	1973–74	1978–79	1983–84	1968–69	1973–74	1978–79	1983–84
43.	0.8100 (25)	0.6769 (31)	0.8633 (26)	0.8974 (23)	4.0380 (25)	4.3945 (18)	4.4274 (29)	3.4684 (32)
44.	0.8092 (26)	0.7450 (25)	0.7882 (27)	0.4347 (27)	3.9947 (26)	4.1419 (24)	4.9817 (22)	3.8997 (22)
45.	1.0249 (19)	0.9460 (19)	1.0040 (18)	1.1642 (12)	3.3589 (37)	3.2866 (35)	3.3302 (32)	2.8994 (39)
46.	0.5705 (39)	0.4948 (44)	0.5511 (40)	0.5883 (40)	3.6386 (10)	6.0398 (5)	6.3859 (10)	5.3482 (11)
Index FL	2.134577	2.287034	2.298719	2.191319	Total Indian Economy Forward Linkage Index FL			

*For Sector specifications see Appendix I

**Figures in parantheses show ranking. Thus rank (I) indicates the sector with the highest value of Index U_i for V_i

Source: Same as Table 1.

Thus overall we see that the top ten sectors from the point of view of backward linkage only over the period 1968-69 to 1983-84 comprise the major groups of chemicals, machinery, metal product industry, textiles and manufactured food products industry.

Similarly from Table 2 it can be seen that sectors with high values of forward linkage index U_i (top ten) for the year 1968-69 in order of ranking are: Crude Petroleum, Natural Gas (9), Other Basic Metal Industry (32), Basic Heavy Chemicals (25), Other Minerals (11), Coal and Lignite (8), Fertilisers (26), Coal Tar Products (24), Electricity, Gas, Water Supply (40) Paper & Paper Based Industry (20), and Iron and Steel (31). Comparing the top ten sectors (from the point of view of forward linkages only) of 1968-69 with those of the succeeding years we find that there is virtually no change in the trend observed in 1968-69. That is, the order of ranking of sectors on the basis of index U_i is almost the same in all the four years under study.

For a better understanding of the sectoral results presented in Tables 1 and 2 we computed simple rank correlation coefficients[3] between U_j's and U_i's between U_j and V_j's and also between U_i' and V_i's.

On the whole the rank correlation coefficient between U_j and U_i of 1968-69 is –0.0945, for 1973-74 it is –0.2582, for 1978-79 it is –0.0797 while for 1983-84 this figure is 0.1438. This implies that sectors with high backward linkages are not the ones with high forward linkages for the Indian economy in all the four years under study. But it can be seen that the rank correlation cofficient betwen U_j and U_i is showing an increasing trend (though small) from 1973-74 onwards which is a reflection of the developmtnet of our country.

Another important trend observed (as can be seen from Tables 1 and 2) is that sectors with a high value of U_j and U_i have a relatively low value of V_j and V_i respectively. The rank correlation coefficient between U_j and V_j for 1968-69 is –0.9278 while for 1973-74 it is –0.8506. In 1978-79 it is –0.9149 while in 1983-84 this coefficients is –0.8584. Similarly the rank correlation coefficients between U_i and V_i for 1968-69, 1973-74, 1978-79 and 1983-84 are –0.9692, –0.9756, –0.9599, –0.9581 respectively.

The negative correlation between U_j and V_j implies that the larger the backward linkage inducement of a particular sector, the smaller is the internal variability of the structure of the inducements over the other sectors. In other words, the high backward linkage effects are well spread out over the rest of the sectors that receive the inducements. On the other hand, sectors with small inducements have their inducements rather concentrated on a few sectors so that the beneficiaries of these effects are few in number. Similarly, sectors with a high value of U_i have a relatively low value of V_i (as is observed from their rank correlation coefficients). In other words, the larger the forward linkage effects of a sector, the more likely it is that the effects are spread out evenly over the rest of the using sectors.

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[3] The rank correlation coefficients have been computed from the data presented in Tables 1 and 2.

Having analysed the linkages at the sectoral level we wish to see the overall trend of both backward and forward linkages for the entire economy over the period under study.

From Table 1 we see that the overall backward linkages (as measured by index BL) for the whole economy are 1.801796, 1.814429, 1.912606, and 1.943702 for 1968-69, 1973-74, 1978-79 and 1983-84 respectively.

Similarly from Table 2 it can be seen that the overall forward linkages (as measured by index FL) for the entire Indian economy are 2.134577, 2.287034, 2.298719 and 2.191319 for 1968–69, 1973–74, 1978–79 and 1983–84 respectively.

Thus a comparison of indices BL and FL over the years under study indicates that while index BL shows a consistent increasing tendency this is not so with index FL. Index FL shows an increasing tendency from 1968-69, to 1978-79 but then declines drastically in 1983-84.

1.3 Economic Growth of India

In this section we examine the contribution of each of the 46 sectors in the economic growth of the country for the years 1968-69, 1973-74, 1978-79 and 1983-84 and also examine the growth rate in GNP of each sector and the total economy in the subperiods 1968–69 to 1973–74, 1973–74 to 1978–79, 1978–79 to 1983–84 and also over the total period 1968-69 to 1983-84.

Table 3 shows the structure of GNP of India for the four periods under study together with the corresponding overall and sectoral growth rates.

From Table 3 it can be seen that over the period 1968-69, to 1983-84 the share of agriculture sectors (that is, sectors 1, 2, 3, 4) in total GNP fell significantly from 38.9 percent in 1968-69 to 27.9% in 1983-84. Each of the agriculture sectors–that is, Food crops (1), Cash Crops (2), Plantation Crops (3), and other Crops (4) shows a declining trend in their GNP shares over the fifteen year period. Of the other primary sectors only Animal Husbandry (5), Crude Petroleum and Natural Gas (9), and Other Minerals (11), show a slight increase in their shares from 1968-69 to 1983-84. On account of the decline in the shares of most sectors comprising the primary sector (sectors 1 to 11), its share in total GNP fell drastically from 50.6% in 1968–69 to 39% in 1983–84.

On the other hand, the service sector's (sectors 41 to 46) share in total GNP rose from 31.0% to 38% of the total GNP from 1968-69, to 1983-84. Of the service sectors, Other Transport Service, Storage and Warehousing (42), Banking and Insurance (45), and Other Services (46) show a significant increase in their shares over the same period. These changes reflect differences in the growth rates of the primary and service sectors. The average annual growth rate of GNP during 1968-69, to 1983-84 for all the primary sectors except Animal Husbandry (5) and Minerals (9, 10, 11) is less than 3% while for most of the service sectors this growth rate is much higher around 6–8%. The most important exception in the primary sector category is Crude Petroleum and Natural Gas (9) which showed an average annual growth rate of 9.1% during the fifteen year period under study. This might be due to the substitution of oil and gas for other energy sources in various production processes. For example, Coal and Lignite (8) shows a much lower growth rate of only 2.2% during the period 1968-69 to 1983-84.

TABLE 3
STRUCTURE OF GNP OF INDIA (At 1983–84 PRICES)

Sector No.*	Contribution in Total GNP (%)				Average Annual Growth Rate Of Production (%)			
	68–69	73–74	78–79	83–84	68–69 to 73–74	73–74 to 78–79	78–79 to 83–84	68–69 to 83–84
1.	18.8	18.9	14.4	13.4	2.9	–1.4	3.6	1.7
2.	5.4	5.8	4.3	4.0	4.4	–2.1	3.7	2.0
3.	1.6	2.1	1.3	1.0	8.7	–4.9	–0.5	0.9
4.	13.1	11.9	10.4	9.5	0.9	1.4	3.2	1.8
5.	4.9	3.5	5.0	5.3	–3.8	11.8	6.4	4.6
6.	3.5	2.0	1.7	2.2	–8.1	1.0	10.2	0.7
7.	1.1	1.1	1.0	0.8	2.1	2.0	0.4	1.5
8.	1.2	1.0	1.0	0.9	–1.7	5.0	3.4	2.2
9.	0.7	0.4	0.6	1.4	–6.3	10.3	25.6	9.1
10.	0.1	0.1	0.1	0.1	11.1	1.6	6.7	6.4
11.	0.2	0.2	0.3	0.4	0.9	12.2	10.2	7.6
12.	0.5	0.002	0.7	0.4	–65.3	225.6	–8.5	1.1
13.	0.8	0.5	1.2	0.8	–5.8	23.4	–2.3	4.3
14.	0.4	0.04	0.04	0.1	–33.4	3.6	29.2	–3.8
15.	0.4	0.3	0.1	0.4	–3.2	–10.7	29.9	4.0
16.	1.3	1.3	0.9	1.9	3.8	–4.4	22.4	6.7
17.	0.1	0.2	0.4	0.7	11.4	17.0	18.9	15.7
18.	0.7	0.6	1.2	1.3	0.9	17.2	7.5	8.3
19.	0.5	0.7	0.6	0.4	8.9	0.02	–3.7	1.6
20.	0.4	0.6	0.5	0.6	13.2	2.6	5.6	7.0
21.	0.4	0.3	0.2	0.2	–3.1	–6.8	13.1	0.7
22.	0.4	0.4	0.3	0.4	3.8	–2.3	10.4	3.9
23.	0.7	0.3	0.1	0.2	–16.8	–8.9	17.5	–3.8
24.	0.1	0.1	0.1	0.02	17.0	–5.1	–20.6	–4.1
25.	0.2	0.3	0.4	0.3	12.2	8.0	–4.3	5.1
26.	0.1	0.1	0.1	0.3	17.9	5.6	23.0	15.2

Sector No.*	Contribution in Total GNP (%)				Average Annual Growth Rate Of Production (%)			
	68–69	73–74	78–79	83–84	68–69 to 73–74	73–74 to 78–79	78–79 to 83–84	68–69 to 83–84
27.	0.1	0.1	0.1	0.1	3.9	5.2	5.6	4.9
28.	0.1	0.7	0.6	1.1	46.1	0.6	18.4	20.3
29.	0.3	0.3	0.2	0.3	4.3	–0.9	10.4	4.5
30.	0.6	1.4	1.9	0.7	21.9	10.9	–13.5	5.4
31.	1.4	1.4	1.6	1.1	2.4	7.0	–2.0	2.4
32.	0.2	0.1	0.2	0.1	–14.6	17.1	–1.7	–0.6
33.	0.6	0.8	0.4	0.7	8.0	–7.0	15.5	5.1
34.	0.2	0.1	0.1	0.1	–0.9	–13.2	20.3	1.2
35.	0.2	0.2	0.2	0.1	4.2	7.3	–4.7	2.1
36.	0.2	0.5	0.6	0.7	19.1	6.0	11.2	12.0
37.	0.03	0.4	0.4	0.9	72.3	3.7	25.0	30.7
38.	1.1	1.4	1.3	2.2	9.1	1.8	17.1	9.1
39.	5.2	4.4	5.2	5.0	–0.6	7.9	4.3	3.8
40.	1.0	1.4	1.5	1.8	8.6	5.5	9.6	7.9
41.	1.2	1.4	1.5	1.2	5.9	6.5	0.3	4.2
42.	1.8	2.3	2.8	3.5	7.6	9.1	9.3	8.7
43.	0.5	0.5	0.6	0.7	5.4	6.8	8.9	7.0
44.	12.1	13.0	15.9	12.1	4.3	8.4	–0.3	4.1
45.	1.9	2.4	3.2	3.1	7.3	10.7	4.4	7.5
46.	13.5	14.4	14.8	17.4	4.1	4.7	8.6	5.8
Total	100.0	100.0	100.0	100.0	2.85	4.14	5.13	4.04

*For Sector Specifications see Appendix-I

Source: Same as Table 1

The secondary sector (sectors 12 to 40) also shows an increase in its share in total GNP from 18.4% in 1968-69 to 23% in 1983-84. Of all the secondary sectors those which show a very high annual average growth rate over the period under study are Electric, Electronic Machinery (37) with a growth rate of 30.7% annually; Pesticides, Drugs and Chemicals (28) with 20.3%, Cotton Textiles (16) with 15.7%, Fertilisers (26) with 15.3%, Other Machinery (36) with 12.0%, Transport Equipment and Miscellaneous Manufacturing (38) with 9.1% and Wool, Silk Synthetic Textiles (17), Wood (19), Tobacco Products (15), Electricity, Gas and Water Supply (40) with annual average growth rates ranging from 6 to 8% over the period 1968-69 to 1983-84. These are also the sectors which show a relatively high increase in their GNP shares in 1983-84 as compared to 1968-69. The other secondary sectors show an average annual growth rate of less than 5%

and also show either some decline or a constant share in GNP over the period 1968-69 to 1983-84.

Thus among the secondary sectors there is a shift in favour of chemicals, machinery, transport equipment, manufacturing, textiles and electricity, gas & water supply sectors as can be seen from their GNP growth rates and increasing GNP shares over the period 1968-69 to 1983-84.

Overall we see that total GNP grew at an average annual growth rate of 2.9% between 1968-69 to 1973-74. Over 1973-74 to 1978-79 the growth rate of total GNP was 4.1%, it was 5.1% per annum over the subperiod 1978-79 to 1983-84 while over the total period 1968-69 to 1983-84 the average annual growth rate of total GNP was 4.04%.

1.4 Economic Growth and Structural Change: Regression Results

The objective of this section is to assess the importance of structural characteristics of the Indian economy in determining the economic growth of the country. That is, we wish to study whether Indian economic growth will be encouraged by the extent to which Indian industries buy inputs from (that is, backward linkages) and sell output to (that is, forward linkages) a large number of other industries.

The regression results describing the relationship between overall GNP and overall backward linkages and between overall GNP and overall forward linkages are reported in Table 4. The results indicate that the backward linkage index BL is significantly related, with the expected positive sign to GNP of the country. The regression results performed very well in this case. The coefficient of backward linkage (BL) is highly significant both according to *t* value and according to the coefficient of determination (i.e. R^2). 90 percent of the variation in GNP is explained by the regression model (i.e., GNP on BL).

On the other hand, we see that the overall forward linkage index FL has a weak positive effect on overall GNP. The coefficient of determination R^2 and t value show that the coefficient of forward linkage (FL) is not significant. That is, the regression results did not perform well in the case of forward linkages. This result is surprising. It implies that industrial development in India though greatly increased the output of steel, crude petroleum, natural gas and chemicals but expanded supply of these products did not stimulate expansion in the wide range of industries which use them as inputs.

Baum, Munro and Schachter (1990) have found similar relationships both in the case of backward linkages (that is, a strong positive relationship with GNP) and forward linkages (that is, an insigificant positive relationship with GNP) for Southern Italy. One reason which they give for the poor performance of the forward linkage index is that forward linkages have measurement problems and the nature of their general development stimulus is less clear than for backward linkages. This might be an explanation of the poor performance of forward linkage index FL in the case of India also, as shown in Table 4.

The limitation of the above regression analysis is that measuring structural change by I-O measures precluded the inclusion of other structural change variables (for example, level of urbanisation, employment by industrial sectors etc.) in the equations. Another limitation is the small size of the sample considered in the above time series analysis.

TABLE 4
LINKAGE REGRESSION RESULTS

I. Regression of GNP on Backward Linkage (BL)

$$GNP_t = -77616475.9 + \underset{(11472897.1)^*}{48924353.3}\,BL_t, \; R^2 = 0.90$$

II. Regression of GNP on Forward Linkage (FL)

$$GNP_t = -3570256.3 + \underset{(32576510.8)^*}{4582980.8}\,FL_t, \; R^2 = 0.01$$

* The figures in parantheses show standard error of coefficients.

1.5 Summary

In this paper the structure-growth relationship in the Indian economy at the national level was examined using data stretching over the period 1968-69 to 1983-84. Structural change was measured using linkage measures while economic growth was measured as the real GNP of the country. The basic hypothesis was that economic growth of the country would be associated with the backward and forward linkages existing in the economy. The growth measures were regressed on the linkage measures to find the relationship between growth and structural change in the Indian economy. The linkage measures and the growth measures were also analysed at the sectoral level over the period 1968-69 to 1983-84 to study the variations across sectors.

The results showed that the most important sectors from the point of view of backward linkages over the period under study comprised the major groups of chemicals, machinery, metal product industry, textiles and manufactured food product industry. On the other hand, the most important sectors from the point of view of forward linkages over the same period consisted of the major groups of oil and gas, minerals, chemicals, electricity, gas, water supply, iron and steel, paper, coal tar products and basic metal industry.

Some other trends observed showed that sectors with high backward linkages were not the ones with high forward linkages also for the Indian economy over the period under study, and sectors with high linkages (whether backward or forward) had their linkage effects well spread out over the rest of the sectors.

The overall backward linkage measure for the Indian economy showed a consistent increasing tendency over the period 1968-69 to 1983-84 but the overall forward linkage measure increased only from 1968-69 to 1978-79, then declined drastically in 1983-84.

The analysis of sectoral GNP's over the period 1968-69 to 1983-84 showed that the share of the primary sector in total GNP fell significantly while those of the secondary and tertiary sectors increased. The average annual growth rate of GNP for the Indian economy was approximately 4% over this period.

The regression results describing the relationship between overall GNP and overall backward and forward linkages showed that GNP was significantly related to measures of backward linkage but not to measures of forward linkage indicating that economic growth in India is encourged by the extent and pattern in which Indian industries buy inputs from other industries (i.e., backward linkages) but not by the extent and pattern in which they sell outputs to other industries (i.e., forward linkges.) The poor performance of the forward linkage index may be due to measurement problems associated with forward with forward linkages and due to less clarity about the nature of their general development stimulus as compared to backward linkages.

APPENDIX I

Sectorisation Adopted for This Study (46 × 46)

Sector No.	Name of Sector
1.	Food Crops
2.	Cash Crops
3.	Plantation Crops
4.	Other Crops
5.	Animal Husbandry
6.	Forestry and Logging
7.	Fishing
8.	Coal and Lignite
9.	Crude Petroleum, Natural Gas
10.	Iron Ore
11.	Other Minerals
12.	Sugar
13.	Food Products excluding Sugar
14.	Beverages
15.	Tobacco Products
16.	Cotton Textiles
17.	Wool, Silk & Synthetic Fibre Textiles
18.	Jute, Hemp, Mesta Textiles & Textile Products
19.	Wood & Wood Products
20.	Paper & Paper Based Industries
21.	Leather & Leather Products

Sector No.	Name of Sector
22.	Rubber & Plastic Products
23.	Petroleum Products
24.	Coal Tar Products
25.	Basic Heavy Chemicals
26.	Fertilisers
27.	Paints, Varnishes and Lacquers
28.	Pesticides, Drugs and Other Chemicals
29.	Cement
30.	Non-Metallic Mineral Products
31.	Iron and Steel Industries and Foundries
32.	Other Basic Metal Industry
33.	Metal Products except Machinery & Transport Equip.
34.	Agricultural Machinery
35.	Industrial Machinery for Food & Textiles
36.	Other machinery
37.	Electric, Electronic Machinery & Appliances
38.	Transport Equipment & Misc. Manufacturing
39.	Construction
40.	Electricity, Gas & Water Supply
41.	Railway Transport Services, Storage & Warehousing
42.	Communication
43.	Trade, Hotels and Restaurants
44.	Banking and Insurance
45.	Other Services

APPENDIX II

Backward and Forward Linkage Indices

The elements of the Leontief inverse provide vital information about the total direct and indirect backward linkages. An element R_{ij} of inverse R indicates the total direct and indirect requirement of the *i*th commodity needed to meet one unit change in the final demand of sector *j*. On the other hand, an element R^*ij of the Ghosh inverse (i.e., supply side) R^* indicates the total direct and indirect requirement of the *j*th sector needed to meet one unit change in the value added of sector *i*.

Rasmussen has given two indices to measure the strength and diversity of backward linkages, respectively. These indices as used in this study are as follows:

$$U_j = \frac{\frac{1}{n} \sum_{i=1}^{n} R_{ij}}{\frac{1}{n^2} \sum_{i=1}^{n} \sum_{j=1}^{n} R_{ij}} \qquad (j = 1, 2, \ldots, n)$$

$$V_j = \sqrt{\frac{\frac{1}{n-1} \sum_{i=1}^{n} \left(R_{ij} - \frac{1}{n} \sum_{i=1}^{n} R_{ij} \right)^2}{\frac{1}{n} \sum_{i=1}^{n} R_{ij}}} \qquad (j = 1, 2, \ldots, n)$$

Index U_j shows the strength while V_j shows the degree of dispersion of backward linkages. If $U_j > 1$ it indicated that sector j has high backward linkages and vice versa if $U_j < 1$. On the other hand, a high value of V_j shows that a particular sector draws unevenly on the other sectors while a low V_j shows that the industry draws evenly on other sectors.

The forward linkage indices U_i and V_i based on the supply side inverse R^* have been calculated as follows for the purpose of this study

$$U_j = \frac{\frac{1}{n} - \sum_{j=1}^{n} R_{ij}^*}{\frac{1}{n^2} \sum_{i=1}^{n} \sum_{j=1}^{n} R_{ij}^*} \qquad (i = 1, 2, \ldots, n)$$

$$V_j = \sqrt{\frac{\frac{1}{n-1} \sum_{j=1}^{n} \left(R_{ij}^* - \frac{1}{n} \sum_{j=1}^{n} R_{ij} \right)^2}{\frac{1}{n} \sum_{j=1}^{n} R_{ij}}}, \qquad (i = 1, 2, \ldots, n)$$

U_i shows the strength of forward linkages. $U_i > 1$ implies a sector with high forward linkages and vice versa if $U_i < 1$. V_i shows the extent to which all using industries draw evenly on industry i, that is, a high V_i indicates that sector i supplies unevenly to the other sectors while a low V_i shows that sector i supplies evenly to the other sectors.

The overall linkage measures (BL and FL) for the Indian economy have been computed by taking the average of linkage measures of all the 46 sectors of the Indian economy in a particular year. However the average of U_j's (as computed above) always equals unity. The same is true for the average of U_i's (as computed above) also. This is because Rasmussen's indices U_j and U_i do not compute the absolute value of linkages. Instead the linkage value of each sector (whether U_i

or U_i) is shown as a proportion of the mean values of all the elements of the inverse matrix.

Therefore in order to compute the overall backward and forward linkages (BL and FL) for the Indian economy the following was done–

(a) The backward linkages for each sector were computed using the simple column multipliers (i.e. the column sums of Leontief inverse matrices R) of the four reference years.

(b) The forward linkages for each sector were computed using the simple row multipliers (i.e. the row sums of the supply side inverse matrices R^*) for each of the four years under study.

(c) The overall backward linkage index (BL_t) of a particular year t was then computed by taking the average of the backward linkages of all the sectors of that year as computed in (a) above.

(d) Similarly the overall forward linkage index (FL_t) was computed by taking the average of the forward linkages of all 46 sectors of that year as computed in (b) above.

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BOOK REVIEW

THE LOAN PUSHERS–THE ROLE OF COMMERCIAL BANKS IN THE INTERNATIONAL DEBT CRISIS

By: WILLIAM DARITY, JR and BOBBIE L. HORN.

Published by: Ballinger Publishing Company, Cambridge Massachusetts, United States of America, 1988, pp. 195.

Reviewed by: PROF. U.N. LAKSHMAN, Department of Commerce, Mysore University, Mysore-570 006.

The book is about commercial bank loans to developing countries and the implications of the same for economic theory and the world in which we live. Essentially the volume focusses in depth on the controversy over the extent to which multinational banks are responsible for the current debt crisis.

The book has been divided into 9 chapters, Chapter I entitled "Loan pushing: parallels between the 1920s and 1970s" explains the pressure that has been there to bear to induce foreign governments and municipalities to contract loans which they did not want or need. Different experts found differnt reasons for loan pushing. Lewis found that numerous overseas loans were arranged for public works projects in the LDC's of the 1920s. Wallich argued world wide depression of 1920 was the reason for foreign loans. He also pointed out that depression aggravated the borrowers' ability to pay and refusal to finance by lenders. P3 and 8 of the book gives six factors of the 1920's related to the loan 'pushing' phenomenon. The only contrast that one could observe between 1920 and 1970s is that lending has been switched from Bond finance to outright commercial bank loans. Vincent Crawford claimed that transition from bond finance to bank loan finance was because "increased benefits of renegotiation in response to debt crises". Such renegotiation are not possible in bond finance "because of the large number of bond holders whose consent would be required". Crawford concludes "in general the superiority of bank lending over bond lending depends on the relative importance of default risk moral–hazard problems and uncertainty that cannot be dealt with adequately by contingent contracts". Charles Kindleberger has indicated reasons for the transition from bond to bank lending. The shift toward bank finance in the 1970s meant not only a shift away from bond finance but also a shift from direct investment. The six features identified (in p3 and p4 of this volume) as components of a broader loan push doctrine—is the subject of this book.

Chapter 2 entitled "Loan pushing and the global debt crises" explains the idea of loan pushing. Brimmer states that pushing loans entails a drastic softening of terms related to the expectations of potential borrowers. In fact in an effort to dispose of surplus funds, the commercial banks made their terms attractive to LDC borrowers.

Kindleberger argues that the buildup LDC indebtedness was triggered by former Federal Reserve Chairman Arthur Burns' "Cheap money efforts . . . in the early part of 1971. Loan pushing amounts to the design of loan packages that attract borrowers who were formerly denied access to international credit markets altogether or who were, at a minimum denied such large amounts of funds.

A nation's total external debt reveals nothing about its capacity to meet its debt obligations. Criteria used to identify problem countries include (a) their total external debt (b) their percapita external debt, (c) their debt to GNP (or GDP) ratio, (d) their debt-export ratio, (e) their debt-service ratio, and (f) their consistency (or inconsistency) with Simonsen's interest rate rule.

A net trade deficit naturally increases foreign debt and therefore emphasis on export earning. In fact debt is expressed as debt export ratio as an alternative to the debt GNP ratio as a guage of creditworthiness. It is generally agreed to use debt-export ratio while servicing the debt, of course the entire foreign debt does not come due at once, since the annual interest bill plus a portion of the principal is due every year.

The Simonsen Rule

Mario Simonsen of Brazil proposed that the growth rate of a nation's export ought to exceed the interest rate at which it can currently borrow. According to Simonsen, if this situation does not exist, a country with a significant prior debt accumulation is liable to run into trouble. This criterion, however, is not different from the debt service ratio, except that the Simonsen criterion emphasizes the direction and rate of change of the debt price and an indicator of foreign exchange accumulation. Cline has compared nominal export growth with LIBOR plus 1 percent for major borrowers. Dornbusch and Fisher examined a measure of the "real" prime rate for developing countries, which was defined as the U. S. Prime rate minus the rate of increase of the dollar prices of non-oil developing country exports over the course of the subsequent year. Dornbusch and Fisher agreed on the ongoing debt crisis.

Jain and Gupta report that U. S. banks were carrying 63.5 of total U. S. loans to developing countries at the close of 1982. Brimmer apart from giving statistics of U. S. and U. K. loans adds that from the perspective of the borrowing nations, reliance upon U. S. and U. K. banks appears even greater. Brazilian economist Persio Arida's hypothesis suggest that the more liberalized a nation, the greater its external indebtenness whereas Richard Falk has proposed militarization–debt nexus hypothesis. If one considers from the standpoint of the relationship between a country's receipt of U. S. military aid and its external indebtedness the Falk hypothesis seems to find slightly stronger point. Walter Kitchenman detected a strong relationship between arms transfers and growth in external debt. Kitchenman estimated that arms purchases amounted for 16 percent of the average yearly flow of medium and long term credits from lenders to borrowing countries in the 1970s.

The fact that payments were typically rescheduled rather than declared in default by the lenders or repudiated by the borrowers is taken by some observers as a sign that the debt problem is manageable.

Professor Cline concluded that the world debt problem is primarily a matter of illiquidity. Illiquidity may cause short term stress, but rescheduling is a reasonable solution since the countries have the intrinsic, long-term ability to pay. Cline acknowledged that a 2.5 to 3 percent rate of real economic growth in the OECD countries would be needed to provide the required export growth in the LDC's to meet debt obligations. However, Cline's formulation offers no assurance that 3 percent OECD growth rates will be achieved by a falling dollar.

Albert Fishlow argued that the liquidity-solvency distinction is inappropriate for nations. Fishlow advocates a focus on the size of prevailing external debt relative to the general interest rate on the debt and the export growth rate. His criteria for country creditworthiness amounts to the equivalent of the Simonsen rule. Fislow expresses that it is impractical to determine whether countries are liquid or insolvent because the long term capacity to service their debt depends on interest rates and export growth rates.

Chapter 3 entitled "Loan pushing and Economic Models of the Banking firm" analysed that the consequences of decisions made now will be realised only in the future. The late Carlos Diaz-Alejandro compared banks and butcher shops. Loss of trust in the butcher shops sounds much the same as the Federal Reserve Bank of Minneapolis description of the cause of a bank run. Sudden drains of bank deposits might jeopardise a bank's ability to meet its deposit obligations. Of course, Diaz-Alejandro acknowledged that his "comparison is surely being forced". He has given reasons to show why bank is different from the butcher shop. The chapter argues that loan pushing is induced by the regulatory system itself. Since banks are unique they require their own regulatory apparatus and they are to be regulated because they are special.

The Theory of Adverse Selection

Adverse selection has been employed to explain how credit rationing can occur when all lenders are "perfect competitors" in the sense that they must offer all borrowers the same rate of interest. Although banks may not be in a position to identify the default propensities of each potential borrower, they do know that as interest rates rise proportionately more high risk borrowers will remain in the pool of credit customers. Folkerts-Landau applied the theory of adverse selection via supply and demand curves to the international loanmarket with a subtle twist. Folkerts-Landau argued that the LDCs moved from a credit constrained position in the early 1970s to an unconstrained position by 1981 as the bank loan supply schedule shifted to the right due to "financial innovations and institutional developments that reduced some of the difficulties in monitoring and enforcing loan terms."

Credit rationing supplants price (interest rate) adjustment. To overcome the risk of different lending methods have been suggested on p 49 and p 50. Of course, rational asset management is no guarantee of prudent lending. No internal response to risk is foolproof for the banks and bank managers can only 'guesstimate' whether reducing one type of risk compensates for the increase in another.

The loans were always not based on need but also based on vested interests. The authors gave the example of Poland what they call "banks cross Red line". By 1980 Poland had accumulated $26 billion in external indebtedness, more than one half of which was owed to commercial banks.

Robert Heller says "the future of international bank lending to developing countries should be seen as a long-term strategic decision and not merely a credit judgement about a particular borrower at a given movement in time or the expected rate of return on a specific loan." The loans to LDC were simply one aspect of a broader profitability strategy being pursued by the bankers.

Chapter 4 entitled "Rational expectations and the global debt crises" analyses three views stating that there is no crisis, there is a rational expectations and that bankers made their decisions based upon rationally formed anticipations but unforeseen and unforceable events made their performs badly and thirdly bad loans are good business. Michael Beenstock is the premier exponent of the first view. He says that growth in LDC manufacturing has accompanied growth in their debt. There is no reason for panic according to Beenstock. Kindleberger, Jaffrey Sachs, William cline all agreed with the view of Beenstock. According to Keynes, banks are confronting uncertainty, as they cannot see the future and the decisions are only predictions.

Doolley and his co-author suggest that the Debt Service Ratio were quite different before 1981 and 1982 because (a) the dollar value of these countries exports grew rapidly throughout the 1970s in both volume and value terms (b) dollar prices of oil and other exports grew faster than the dollar prices of traded goods in general and (c) growth of the debt burden was contained by generally low or at times negative real interest rates on dollar (denominated) debt. On Bank management problems the author pointed out that the banks should try to prevent their stocks from losing heavily on the securities market. The second view is that the existing debt crisis is the outcome of a random shock of oil price hike and its effects sent the borrowing nations into arrears on their debt payments. The third view is that the bankers intentionally made bad loans and that there is no debt crisis and if there is one it has been due to a random shock.

Chapter 5 entitled "Irrational credit? Institutional weaknesses and the crisis in International Finance" explained that the bankers did not need to worry about their individual borrowers capacity to pay, only the borrowing nation's capacity to pay. The governmental guarantee have contributed to the impression among the bankers that their loans were immune from repudiation. David Folkerts-Landau contends that the basis for commercial bankers' beliefs in lending is governmental gurantee regulatory institutions, deposit insurance, and central banks. Besides

Syndication of loans coupled with cross-default clauses would insure the impact of default. In fact this would make it extremely difficult for individual borrowers to declare default on particular loans. Syndication plus cross-default clauses were financial innovations introduced in the mid-1970s and designed to assure that a defaulting borrower could not recter international credit markets. Lord Keynes blamed commercial banks for not forecasting the future, however, he points out that banks were partially victims of bad advice from Economists. For Keynes the bankers were prisoners of customary responses to stimuli from an economic world that propelled them into unwarranted lending sprees from which they eventually recoiled, only to deepen their peril. They pushed loans because it was conventional to be making such loans at the time.

It is ironical to note as pointed out by James Henry that "In some cases, the wealthiest class of poor countries have actually sent more money out of their countries than foreign borrowing has brought in and it is often the same money. Henry contends that over fifty percent of the funds lent to Mexico, Venezuela and Argentina have gone back to the lenders, soon after they flowed in to each country. Henry gives various examples (on p. 95) as to how much money have actually moved to rich countries. On secondary market the authors concluded that it could spread risk, but even the debtors who can but back their loans at a discount and avoid paying full value have not surged into the secondary loan market.

Chapter 6, entitled "The Debt pullers: overborrowing by the developing countries", analyses the debt pullers by starting the explanation given by Guttenberg and Herring. These authors commit themselves to the stance that the debt crisis is due to structural weaknesses in the ongoing scheme of international finance. Guttenberg and Hering mention two points namely bad luck' and 'imprudent borrowing' on the part of the developing countries. Mario Simonsen of Brazil Squarely blamed commercial banks for debt crisis (p. 104). In this chapter, the authors blamed the leaders of debtor nations. The root of debt crisis is unregulated Eurodollar market.

Chapter 7, entitled "Minsky cycles and the global debt crisis Financial instability" starts with a sentence "If any theory is a tailor made explanation for the current international debt crisis, it is Hyman Minsky's financial instability hypothesis. The financial instability hypothesis mandates that the credit mechanism of capitalist economies is inherently prone to malfunction, contributing directly to recurrent cyclical downturns. Minsky contends that long periods of prosperity propel lending institutions to extend credit to borrowers with increasingly weaker financial position. Minsky contends that banks should heed the financial monetary theory of Minsky, Simons and Keynes. Minsky asserts that monetarism misleads the bankers by leading them to believe it is intervention by the monetary authorities that destabilizes the financial mechanism, rather than the normal, unfettered practices of private banks themselves. For Minsky, cyclical fluctuations are characteristic of the unregulated capitalistic economy; appropriate regulation will eliminate the cyclical swings. Minsky also points out that lenders will pursue their operations when institutions are willing to 'insure'. He gives the example Lender of Last Resort of Federal Reserve system. For example (p 126) If the Federal Reserve performs its function as lender of last resort without any major Quid pro Quo from the rescued financial institution, this would only serve to encourage others to continue making injudicious loans.

Chapter 8, entitled "Marxist Theory and the Global Debt crisis" states that international capitalism is necessarily predisposed toward crisis. This chapter explains Marxism by looking into three schools of thought namely (a) the Austro-Marxist explanation following Rudoff Hilferding (b) a fundamentalist approach from David Harveys works (c) the Trotskyist explanation expressed by Earnest Mandel. These approaches analyses the developing country indebtedness. Today the accumulation of debt by developing countries represents something Quite different from the effects of the Hilferding or Mandel capitalist cycles.

Chapter 9, entitled "Why nothing will work (perfectly): solutions to crisis emphasised that besides action to be taken to solve the crisis case by case, IMF role should be increased. The chapter says case-by-case should be considered as unique and requires individualised treatment. The chapter further discusses various schemes proposed by eminent people to solve the debt crisis. William cline pointed out the problem is temporary liquidity and it can be corrected by sensibly rescheduling the debt. James Baker calls for additional lending from the commercial banks, coupled with an extension of the maturity dates of the loans and financial support to the LDC borrowers from the U. S. Treasury. Besides Conway who criticises the Baker plan (p. 159) Fisher concludes (p.159) that "further lending promises little in the way of a lasting solution to the debt problem. So long as real interest rates remain around 6 percent debtor countries will have great difficulty growing out of their debt problem". Bradley emphasises debt relief. He suggested not only to cut three percent of interest rates by commercial banks, but they should also write off a maximum of three percent of loan principal. Another solution offered was having secondary market for LDC debt, setting up debt equity swaps, and creating a new debt instrument to replace commercial bank loans, for example shares in LDC export earnings (pp. 160-162).

Lorie Tarshis advocated complete debt forgiveness and uniform discount rate on all the debt. However, Tarshis is not specific about how the LDCs would finance future development efforts.

Fidel Castro (p. 165–166) squarely blames the moneylenders, and the banks by saying that they have pushed the loans. Castro proposes to push the loans back on to the creditors. Castro seems largely unconcerned about the collapse of western and Japanese commercial banks that would be triggered by massive debt repudiation.

With regard to solutions in the long term probably case-by-case approach seems an appropriate strategy with sufficient flexibility to accommodate the particular form future shocks might take. This might mean larger of somewhat modified roles for the IMF or the World Bank. The Fed could always stand ready to reflate the U. S. Economy to ease the debt burden.

By giving final thoughts on the subject the volume says that overborrowing is the source of crisis, and therefore prudent regulation might be one route to help contain crisis. The volume ends with a big question: Will the loan pushers chart a renewed course of pushing in the future or will they be prohibited from doing so? In the appendix the volume has given 16 tables which are very useful to understand the problem of debt and its related aspects.

The book is rather controversial as the subject is. However, the chapters are very well written and the authors demonstrated their expert knowledge on the subject. The volume has been very well titled as " The Loan pushers: The Role of Commercial Banks in the international debt crisis."

The book will be of immense value to all those interested in the components of debt problem, and to policy makers at various levels before contracting for loan agreements. Besides it is very useful to research students who work on External Debt problem and its related topics. It is also useful to all those who are interested in knowing the dimensions of debt problem and the Role of Commercial Banks.

NEW TECHNOLOGIES AND DEVELOPMENT: EXPERIENCES IN TECHNOLOGY BLENDING

Edited by: A.S. BHALLA and DILMUS JAMES LYNNE RIENNER.

Published by: Boulder/London, United States of America, 1988, pp. 327.

Reviewed by: PROF. U.N. LAKSHMAN, University of Mysore, Mysore-570 006.

Here is a useful book on New Technologies and Development Experiences in Technology Blending. The volume is a product of contributions from experts from different fields. At the very outset it should be pointed out that this book is useful for the students of Sericulture, Agricultural Economics and Journalism besides commerce students. In the introduction, A. S. Bhalla and Dilmus James pointed out that the focus of this volume is not general applications of the Technology, but a conscious effort to unearth operating examples where frontier technologies are applied to small scale and traditional activities. Of course, the editors are very clear by giving an example of microelectronic innovations in agriculture that the knowledge and documentation on the experiences of applications are not easily available. The volume has given special attention to the application of new technologies for the satisfaction of basic needs i.e. the use of microcomputers in the delivery of health services in rural areas (Chapter 11) neobiotechnologies for food production (Chapter 17) or remote sensing and telecommunications for rural development (Chapter 16 and 18).

The volume is divided into five parts. Part I entitled "Concepts and policy issues" comprises three sub chapters entitled (a) New Technologies and old Debates by N. Rosenberg, (b) Some conceptual and policy issues by A. S. Bhalla and D. James, (c) Skill Requirements of New Technology applications to Traditional sectors by D. James.

The opening chapter by N. Rosenberg puts the issue of Technology blending in the wider perspective of Technological pluralism, labour-capital substitution and employment consequences of technological change. The chapter also attempt to determine the possible limits and constraints that may be associated with such an approach and the useful research directions.

In Chapter 2 of Part I entitled "Some conceptual and policy issues"–A. S. Bhalla and D. James explained the distinctions between different concepts–appropriate and intermediate technology, technology blending and choice of technology from a menu of different alternatives. The authors pointed out that late comer developing countries need not undergo the problems that advanced countries have gone through. It has been made clear that as long as the infrastructure and software requirements in the poor countries are not met, the high technology hardware will remain too sophisticated to be used efficiently and at full capacity.

In Chapter 3, Part I entitled "Skill requirements of New Technology Applications to traditional sectors by D. James suggested a general outline for the skills dimension of an effective policy for introducing new technologies in the Third World. The chapter analyses three major issues namely (a) Education and New Technology, (b) Training policies and systems, and (c) Skill requirements of technology blending. The new technology can become a powerful tool if it can widen the access of the population to education and acquisition of knowledge, what the authors call as "polytechnical education" referring "the teaching and learning of the principles of Science and Technology in daily life. They have emphasised the need for interaction between the training institutions and universities by giving the examples of Singapore where joint Government-cum-private training centres have been set up to provide industry with a pool of trained apprentices. The authors further pointed out that the Human capital formation must go beyond the acquisition of skills.

Part II entitled "Microelectronics" has been divided into 8 chapters. Each chapter has been written by different expert authors. Chapter 4 part II entitled "Microelectronics use for small scale production in developing countries" by A.S. Bhalla states that developing countries are facing a problem of expanding employment and in the case of rural industrialisation to prevent excessive rural to urban migration. By and large Third world's industrial policy is the adoption of import—substitution and capital intensive strategy. This chapter emphasises the need for using new technology in small scale production. Section II examines the actual experience in utilising microelectronics, and has given a chart about new technology application in Textiles and Garments. The chapter also gives examples of Brazil and Singapore where computer numerical control (CNC) is being used. In Hong Kong Micro-computers have been used in small Textile enterprises. Of course the need for more Research and Development has been emphasised.

Chapter 5, Part II entitled "Information Technologies in small scale footwear production: Some lessons from the French experience" By B. Coriat divided the chapter into three sub-headings like (a) Integration and Flexibility—a new Technological Trajectory, (b) CAD—Laser cutting and Automatic stitching in a foot wear enterprise and (c) conclusions and Lessons. This chapter explains the results of series of surveys and studies in small and medium sized enterprises carried out in France since 1983. Section I emphasise the hypotheses adopted regarding the development of information technologies and more specifically programmable automation (PA) in the context of small and medium sized enterprises. Section II analyses the results of a field investigation in footwear production. Section III mentions the lessons that can be drawn for developing countries from the French experience. It also points out that footwear production offers an almost exemplary case of technology blending. However, it should be observed that what is small in France may be generally medium sized for a typical developing country. This chapter gives a lesson that the emergence of flexible technologies constitutes an instrument for achieving economic independence, the potentialities of which are worth exploring.

Chapter 6, Part II entitled "The use of High technology" in the cottage silk industry in Como, Italy by D. Mazzonis consider in detail the experience of the Italian silk Industry in the Como region in the blending of traditional and new technologies. This chapter also divided into IV sections. Section I gives a brief account of the como textile industry which provides employment for about 21 percent of the total industrial jobs. Section II explains the process of production in the silk industry. Section III discusses the use of new traditional technologies and reviews the socioeconomic implications of new technology diffusion. For students of Sericulture the chart given in p. 78 seems to be more useful. Section IV describes new projects, i.e. computer–aided design and manufacturing (CAD/CAM) which are currently being performed by the Italian Commission for Nuclear and Alternative energy resources (ENCA). Como experience is relevant to developing country family based enterprises as it highlights the financial constraints that hinder Quantum jumps in innovations but still permits retrifitting types of incremental innovations. This experience also demonstrates the need for government role in providing infrastructure. Though Como experience has evoloved in a very different cultural context, yet her experience of social, institutional and financial innovations can be very useful to the developing countries silk industry.

Chapter 7, Part II entitled "Microcomputers use by the Malaysian Rubber Industry small holders development authority" by G. I. Tottle, K. A. Baker, describes a pilot project explaining the use of the system for computer Aided Agricultural Planning and Action (SCAPA) to assist rubber industry small holders in Malaysia. It also outlines the general potential and problems (social, technical and economic) associated with more general applications of the SCAPA approach.

Chapter 8, Part II entitled "Pipeline Engineering and Microelectronics Applications in the iron ore industry in Northern Mexico" by A. K. Lower analysed the Mexican pipeline's technological features and technology blending system which can exploit actively small remote deposits in the countryside which would have been left untouched by the traditional mining methods. In this case it has proved that technology blending brings team work. It is because engineers. administrators, supervisors, instrument mechanics, electricians, mechanics and helpers are all concerned with maintaining and monitoring the slurry flow-all work in a sense of team work.

Chapter 9, Part II, entitled "Microcomputers in Schools in Developing Countries" by A. Anandakrishnan, M. Cardenas, J. F. Galay-Fontes, P. Robler Perzez explains the micro computers use in Indian school to build up tomorrow's workforce to meet the new challenges posed by computer based technologies. Section II discuss the experiences of Argentina, Mexico and Senegal in the field. Section III deals with the problems encountered in the use of computers in developing nations. Section IV explains the potential of computers in job creation. Of course they are fully aware of social inequality that will arise due to computers and therefore suggested to increase the cooperation of educators and planners.

Chapter 10, Part II, entitled "Microcomputer Applications in the Health and Social Service Sector of Developing Countries" by N.E. Bestand, R. Arminana, B. Auvert, examines the scope and limitations of minicomputers for use in health planning, data collection and delivery services. The use of minicomputers in medical diagnosis is very helpful in developing countries where doctors are in short supply. It will also help to treat a number of patients through minicomputers. Section I gives some specific examples of minicomputer use in the health sector for health data analysis in Colombia, Malaysia and in Saudi Arabia. Section II presents an evaluational frame work for the understanding of new technology applications in the health and related social sectors. Health influences the quality and productivity of labour force and as such it should be viewed as socio-economic system.

Chapter 11, Part II entitled "Application of Microcomputers in primary health delivery services in Egypt" by E. E. Galal explains the need for better health services to provide better education and overall progress in research and development. In this chapter Section I outlines the public and private health services in Egypt. Section II is devoted to the use of computers for processing information in health services. Section III describes and assesses a pilot project (at the Faiyum Governorate) that was financed by the United Nations Financing System for Science and Technology for Development (UNFSSTD). The authors also stressed the need to involve local staff in design, management and evaluation of field projects.

Chapter 12, Part III, with a "Photovoltaic Applications in rural areas of developing countries: A survey of evidence by Y. Stevens pointed out the importance of P. V. Technology due to scarcity of Fuelwood and charcoal and high oil bills which restrained the developing countries progress. This chapter apart from emphasising the need for P. V. technology also identifies the applications for which P. V. technology is potentially advantageous. Section I focuses on dedicated

P. V. systems used for water pumping refrigeration for rural health care, rural telecommunications, radio and T.V. sets, household and street lighting. The chapter also gives details in table forms to make even an ordinary man to understand the issues. Sections III focuses on multi-use and centralized systems. In conclusion, it discusses the current and potential viability of groups of P.V. applications.

Chapter 13, Part III, entitled "Photovoltaic street lighting in India" by R. Bhatia explained the efforts made by the Government of India in the programmes of production, installation and field testing of photovoltaic (PV) system in various parts of the country. Apart from efforts made in the field of rural electrification programmes a special reference has been made to the experience Achheja village in Uttarpradesh in Section I. Section II examines the economies of PV streets lighting in comparison with lighting through grid extension. Section III discusses the more general social aspects of P.V. systems. The chapter concludes that community P.V. systems for lighting can be more economic than conventional lighting at distances as low as 3 KM from the grid.

Chapter 14, Part III presents the economic aspects of using P. V. from the view points of the consumer as well as society. Section I reviews the field experience including financial aspects, while section II presents an economic analysis from the society's point of view and section-III concludes that P. V. system is technically feasible and financially viable as a means of providing limited lighting benefit to household and/or shops.

Chapter 15, Part IV entitled "Other Technologies comprises 5 sub-chapters with different headings, written by eminent authors. Chapter 15 entitled "Laser Technology" for land levelling in Egypt" by J. Jonish explained the use of Laser technology in agricultural land. Section I of the chapter compares conventional and laser land levelling activities and its effect on middle and lower Egypt, followed by a discussion of the technology transfer mechanism for lasers. Section II provides an initial economic evaluation of the laser technology utilising data from Egypt and Saudi Arabia. The final section makes observations regarding the application of laser technology to Egyptian agriculture.

Chapter 16, Part IV, entitled "Satellite Remote sensing in developing countries— The experience of West Africa" by N. Jasentuliyana, R. Chipman, has been divided into 4 sections. Section I examine satellite remote sensing with special reference to its cost. Section II discusses the application of remote sensing technology to different activities. Section III reviews two projects in Burkina Faso and Senegal in West Africa. Section IV devotes to Technical Socio-Economic and remote sensing activities. Section V underlines the need for a National Strategy for resource management.

Chapter 17, Part IV, entitled "New Biotechnologies for food production in developing countries with special reference to Cuba and Mexico" by P. Bifani, attempts to analyse some of the contributions that new biotechnologies can make to the food problems of poor countries and thus help satisfy basic human needs. Section I, deals with alternative strategies for the use of biotechnologies in food production as well as in processing. Use of Agro-industrial wastes for protein production which is a major focus of this chapter is discussed in Section II. A brief case study of Cuba is presented in Section III and a detailed case study of Mexico in the application of amino acids (lysine) and single cell Protein (SCP) from bagasse, molasses and cassava is presented in Section IV. Potential employment effects of the use of fermentation processes for lysine and SCP are discussed in Section V.

Chapter 18, Part IV entitled "Cloning of Tea in Malawi by D. James, R. Lalkaka, K. Malik reports on a project that was financed by the UNFSSTD. Application of modern biotechnologies to cash crops like Tea is the subject of this chapter. The authors explained the reasons as to why Malawi resorted to raise productivity per hectare through the use of fertilisers and through relatively new techniques like cloning. Section II analysed the importance of small holder management which has increased the quality and yield and section IV explained the shortcomings of small holder management practice, whereas Section III explained the cloning and propagation under UNFSSTD/TRR project. This chapter also stated as to how Malawi has given to priority for research and modern biotechnology and its effect on the use of advanced biotechnologies on food and cash crops including tea.

Chapter 19, Part IV entitled "Telecommunications for Rural Development" by A. S. Bhalla, N. Jcamier explains the importance of satellites, small earth stations, portable telephones, mobile radios, teletext and videotex and their advantages towards education, communication as well as for weather forecasts and disaster and warnings.

Chapter 20, Part V, namely "Conclusions and Lessons" by A. S. Bhalla, D. James, examined the Social, economical cost effectiveness of new technology applications. The chapter also analysed the potential of technology blending in future.

In the appendix, the book explained the use of technology by Central Tunisia Development Authority in Nigerian Agriculture in Prato Textile Industry in Italy. It also explained the use of CNC machines in small firms in United Kingdom and Japan. In general the appendix explained the use of technology in various fields by different countries.

The chapters are very well written and the authors demonstrated their expert knowledge in their respective fields. The book has been very well titled as New Technologies and Development – Experience in "Technology Blending" and the authors are very much at home in their subjects.

CONTROLLING THE ECONOMIC FUTURE: POLICY DILEMMAS IN A SHRINKING WORLD

By: MICHAEL STEWART.

Published by: Wheatsheaf Books Ltd., 1989, Sussex.

Reviewed by: PROF. S. SHIVA RAMU, Indian Institute of Management, Bangalore-76.

Michael Stewart's book gives an analysis of controlling the economic future in the politico-economic framework. The reference data presented is upto beginning of 1980s. Many facts have moved faster than the author has envisaged.

Many issues raised by the author, have already been recognised as global commons problem, like air and water pollution, energy conservation on an international scale. The international organisations have started promoting environmental management consistent with sustainable development. Many projects funded by the world Bank have mutually supportive objectives of economic growth and environmental protection. The European Council has endorsed in June 1989 the Delors Committee Report on Economic and Monetary Union in the European Community. The three basic characteristics of a monetary union are total and irreversible convertibility of currencies, freedom of capital movements and fixed exchange rates. The basic elements of an economic union are a single market, a joint competition policy, common structural and regional policies and coordination of macro-economic policies.

The move towards an integrated economic policy is taking shape. In this context, the analysis presented by Michael Stewart can be treated as an introduction to understand the complex interplay of economic policies in industrialised countries. The governmental macro economic policies, such as fiscal, monetary and exchange policies, have difficulties. It may be difficult to accurately forecast the effect of such policies. Sometimes, it may be difficult to balance various instruments or to identify one instrument with one target variable. The Keynesian doctrine was replaced by the Monetarists doctrine. This, the author feels, has done "more harm than good". This doctrine does not take into account the behaviour of politicians who "live and operate in the short run".

After a cursory glance of the industrial economy's macro economic policies during 1960's and 1970's the author comes to the conclusion that there are two presumptions, viz., space and time dimensions. The spatial dimension restricts the economic policy to nation-state level. The policy makers have a concern for short one. With the data of 1965 to 1979, the author concludes that there is more dependence on output and employment in OECD countries. Consequently, the government's "ability to influence key domestic variables has been correspondingly eroded". Considering the implication of the expansionary fiscal acion in home country has affected foreign country. The policy actions in foreign countries have effect on the home country. The home country policy instruments have less effect on target variable. Sometimes these instruments have more effect on foreign governments target variable. There is response of the foreign government policies on home country's target variables. The author feels the deflationary bias in OECD countries had worsened recession. This is due to the divergent judgment by world financial community and individual governments. As there was interdependence on one counttry following deflationary policies resulting in deflationary consequences in others, these policies were abandoned during 1980.

There are two alternatives for the decision making procedures. One way is to de-link the country from the international economic system and the other way is co-ordinating economic policy with other countries. The author is in favour of the second alternative and takes up few issues like employment, growth, natural resources, energy problem and environment. Dealing with the future of employment, he perceives uncertainties in the labour market in deciding the right applications for the labour force. However, it can be ensured "by significant degree of long term forward planning". Next he deals with the exhaustible resources which may affect the economic growth. And he believes "it should be possible to devise a system of taxes and subsidies which would provide private and social discount rates into line". Similarly, he deals with the energy problem and environment issues. He suggests a long time horizon to consider different alternatives.

The author gives a limitation of economic policy instruments in the present day political process where there is limited spatial and time demensions in determining economic policy instruments. While dealing with these aspects, the author has neither been able to completely explain the economic policy decision making and its impact nor political decision making and its impact. So the book in itself is neither fish nor fowl. However, the issues raised in the book are still relevant. There are several attempts at various fora to synchronise the macro-economic policies of individual country with that of global interdependence. In this context, the framework and the issues alluded in the book are current. One can read the book for a quick overview of issues involved in macro-economic policies and their interdependence on other countries.

MULTINATIONAL ENTERPRISE AND WORLD COMPETITION

By: JEREMY CLEGG.

Published by: Macmillan Press Ltd., Hampshire, 1987, pp. 206, price Rs. 29.50.

Reviewed by: SHAIL SINGH, Department of Economics, J.L.N. (P. G.) College, Etah-207 001.

This volume is a revised version of author's doctoral dissertation. There is enough work been done on MNEs but it is mostly theoretical type of. As there has always been lack of information regarding the nature and extent of multinational enterprises' operations, empirical work could not be done satisfactorily. But it is a pressing need of the time that empirical analysis consistent with the modern theoroetical perspective should be undertaken. And in this reference the book contributes significantly.

The book presents a comparative study of the causes and methods of international competition of five major international economies, the USA, Japan, UK, Sweden and the Federal Republic of Germany. The study is multifaceted, it is a cross-country, cross-industry, cross-form of involvement and a cross-time study. The author has applied explicit tests for international differences in the models obtained for a selection of five major developed countries, using comparable data. Furthermore, the analysis is applied to data on both outward and inward involvement. Regression analysis has been used as a principal tool of investigation. The data is carefully assembled, rigrously analysed and sensibly interpreted.

The comparisons between the inward and outward capital stake patterns of the USA and Germany, and those of the UK and Japan, are particularly instructive; while the changes which have taken place in the character and form of Japanese outward economic involvement between 1965 and 1975 suggest that the belief by some Japanese scholars that a different theory is necessary to explain the activities of Japanese, compared with US MNEs, may be misguided.

On major conclusion of this book, which includes a comprehensive review of the major theoretical and empirical research on MNEs, is that any worthwhile theory of international production must be part and parcel of a more general paradigm which also explains the possible alternatives to such production. This involves answering questions relating to both the locations and ownership of economic activities, and hence drawing upon different strands of economic theory, notably the theory of international trade and the theory of the firm.

Clegg's book is must for any student of international trade. It would serve as a good starting point for taking up new and in depth studies of empirical nature on various aspects of international competition. Clarity of thought, economy of expression and objectivity in presentation are some other commendable features of the book.

INDIA'S FOREIGN TRADE BY REGIONS 1950–1986

By: NEELA MUKHERJEE and AMITABHA MUKHERJEE

Published by: Indus Publishing Company, New Delhi, 1988 pages 176 + x price Rs. 150.

Reviewed by: SHAIL SINGH, Department of Economics J.L.N (P. G.) College, Etah-207 001.

Independence brought a significant change in our foreign trade from a colonial pattern comprising largely export of raw materials and import of manufactured goods, to the one suitable to the needs of a developing economy. Moreover, countries and the regions which were dominant trading partners in the colonial era gradually lost their significance making place for other countries and regions which become more important in the spatial structure of India's trade in the post colonial era. And in due course of time it could not remain possible for India to maintain her trade relations only with some of the selected countries as for the new forces exerted pressure on the direction of trade. Imports which were essentially developmental and need based were supplied by those countries and regions which were economically developed and had the surplus capacity to export the product and also had such terms and conditions which India could adjust to. Export on the other hand, were determined not by any particular factor such as prices offered by different countries for exportables but by strength of the foreign market, the prevailing incentives and disincentives in respect of trade both in home country and abroad, and the domestic surplus capacity for exports etc.

The volume under review provides a comprehensive discussion on direction of India's foreign trade. The regions selected for study are the sterling area, the dollar area, EEC, East European countries, ESCAP, OPEC, and African countries. The authors have tried to analyse India's trade with these regions and to present an overall picture of the trade dynamics. While discussing the trade with regions the study also highlights India's trade relationship with important countries UK, USA, USSR, Japan, and West Germany.

The sterling area trade was maintained by India on account of her colonial links rather than on acccount of indispensability. Maintaining the status quo of India's direction of trade in the initial years of planning with little or no attempts at trade diversification and promotion to different countries and regions inflicted great damage to India's foreign trade especially from the long run perspective. It made for low base in exports which characteristically remained behind imports. Also the oncoming of the trade diversification which by itself is a long-run phenomenon got delayed in the process.

India's trade with dollar area has been mainly with USA. But as the dollar got stronger, India's imports from USA became dearer which had a direct bearing on the level of imports. And though exports got cheaper their demand could not pickup appreciably with both tariff and nontariff barriers in full swing. However, the sizeable share of trade with the dollar area in the sixties and the economic consequences thereby have taught the economy two lessons—one increased dependence on any country or anyone trading area may not always be conducive to the best interests of the economy, and second, if trade has to be on sustained basis and prosper then trade relations have to be based more on mutual cooperation and economic rational rather than on political motivation.

India's trade with east European countries has been important in her developmental efforts. Imports from these countries were by no means low priority imports. The unit value realisation of India's exports to these countries has been generally higher than many other countries. Consequently her terms of trade have not been unfavourable. Above all, the facility of rupee trade and automatic adjustment of surplus and deficit in trade balance through exports saved the precious foreign exchange reserves of the country and enabled her to find markets for goods when recessionary conditions in convertible currency trade countries in the mid-seventies and towards the end of the decade made the selling and delivery of goods abroad a very uninviting proposition.

Seventies have proved to be a problematic decade as far as imports from the OPEC are concerned obviously because of oil-price-hike. India's exports of appropriate technology, skill, expertise, finished and semi-finished goods at competitive prices have already started picking up. But India's export growth has not been warranted both in terms of imports as well as in terms of the broad and diverse markets which these newly rich countries have laid out. The authors suggest that concentrated efforts are needed on a bigger scale for substantial increase in quantum of exports as well as realisation of higher prices, and in the process narrowing down the cumulative trade deficit attained so far.

Though India's trade with Africa increased in value terms it registered a decline in its relative share vis-a-vis India's other trade partners. The growth of Indo-African trade has been slow enough and India's share in total trade of Africa has also declined over the years. However, the fall in India's share in African exports was lesser than that of imports. Great scope exists for increasing India's non-traditional exports to African countries which have gone in for massive industrialisation programmes to further their developmental goals. Appropriate goods at competitive prices with regularity of supply can broaden the export base to Africa.

To conclude, the authors have meticulously analysed each aspect of book taken into consideration. However, there are too many printing (spelling) mistakes which could have been avoided with better proof reading. The book is a sincere contribution on the part of the authors and will certainly serve as a useful aid to those who are working in the field of international trade.

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